

## table S 1A-E. Purification of Sas6 associated proteins

*Drosophila* proteins are given according to their Fly Base nomenclature; CG 33052 corresponds to GORAB. Where indicated, cultured cells were treated with 25µM MG132 for up to 5 h to inhibit proteasomal degradation and/or 50nM okadaic acid for 9 to 16 h to inhibit protein phosphatases. During the purification of proteins from syncytial embryos, 440mM NaCl and/or 50nM okadaic acid were included in the elution and wash buffer where indicated. Heat shock proteins, ribosomal and translation associated proteins, actomyosin- and microtubule-associated proteins were consistently identified in control purifications of GFP or protein A or with proteins having kinetochore or cytokinesis functions.

## table S 1A. pUb-Sas6-GFP purification from syncytial *Drosophila* embryos

| CG #    | Score | #pep | Full name                                       | CG#     | Score | #pep | Full name  |
|---------|-------|------|---|---------|-------|------|--|
| CG15524 | 13751 | 272  | spindle assembly abnormal 6                     | CG5374  | 75    | 2    | Tcp1-like  |
| CG33052 | 6514  | 106  | CG33052   | CG3612  | 75    | 1    | bellwether   |
| CG4264  | 1134  | 25   | Heat shock protein cognate 4                    | CG9124  | 74    | 1    | Eukaryotic initiation factor 5 p40 subunit         |
| CG11129 | 1022  | 14   | Yolk protein 3                                  | CG14792 | 73    | 1    | stubarista   |
| CG2985  | 719   | 13   | Yolk protein 1                                  | CG3455  | 72    | 1    | Regulatory particle triple-A ATPase 4              |
| CG9277  | 619   | 10   | -Tubulin at 56D                                 | CG17754 | 72    | 3    | CG17754  |
| CG9277  | 549   | 8    | -Tubulin at 56D                                 | CG2960  | 71    | 2    | Ribosomal protein L40                              |
| CG9277  | 549   | 8    | -Tubulin at 56D                                 | CG6186  | 71    | 1    | Transferrin 1                                      |
| CG1913  | 482   | 10   | -Tubulin at 84B                                 | CG2982  | 66    | 1    | CG2982   |
| CG8280  | 473   | 10   | Elongation factor 1 48D                         | CG11276 | 65    | 1    | Ribosomal protein S4                               |
| CG2979  | 462   | 8    | Yolk protein 2                                  | CG32855 | 64    | 7    | CG32855  |
| CG9359  | 441   | 6    | -Tubulin at 85D                                 | CG10811 | 63    | 1    | eukaryotic translation initiation factor 4G        |
| CG4634  | 407   | 6    | Nucleosome remodeling factor -38kD              | CG14648 | 62    | 1    | growl  |
| CG5261  | 354   | 8    | CG5261  | CG893   | 61    | 1    | Glyceraldehyde 3 phosphate dehydrogenase 2         |
| CG5261  | 337   | 7    | CG5261  | CG3203  | 61    | 1    | Ribosomal protein L17                              |
| CG9476  | 306   | 7    | -Tubulin at 85E                                 | CG148   | 59    | 1    | discs overgrown                                    |
| CG7660  | 283   | 4    | pxt   | CG4916  | 59    | 1    | maternal expression at 31B                         |
| CG8937  | 243   | 6    | Heat shock protein cognate 1                    | CG8231  | 56    | 1    | T-cpl  |
| CG5436  | 229   | 5    | Heat shock protein 68                           | CG1242  | 55    | 1    | Heat shock protein 83                              |
| CG8251  | 221   | 2    | Phosphoglucose isomerase anastral spindle 2     | CG10489 | 55    | 1    | Pole 2   |
| CG8262  | 219   | 4    |   | CG583   | 52    | 1    | C-terminal Binding Protein                         |
| CG4147  | 207   | 5    | Heat shock 70-kDa protein cognate 3             | CG17333 | 51    | 1    | CG17333  |
| CG8937  | 181   | 3    | Heat shock protein cognate 1                    | CG12708 | 51    | 2    | CG12708  |
| CG8937  | 181   | 3    | Heat shock protein cognate 1                    | CG7490  | 49    | 2    | Ribosomal protein LP0                              |
| CG7756  | 178   | 4    | Heat shock protein cognate 2                    | CG808   | 49    | 1    | -Tubulin at 67C                                    |
| CG1873  | 169   | 4    | Elongation factor 1 100E                        | CG5330  | 48    | 1    | Nucleosome assembly protein 1                      |
| CG1873  | 169   | 4    | Elongation factor 1 100E                        | CG698   | 47    | 1    | Formaldehyde dehydrogenase                         |
| CG1873  | 169   | 4    | Elongation factor 1 100E                        | CG2151  | 47    | 1    | Thioredoxin reductase-1                            |
| CG4869  | 164   | 2    | -Tubulin at 97EF                                | CG5119  | 47    | 1    | polyA-binding protein                              |
| CG8963  | 146   | 2    | CG8963  | CG3201  | 44    | 1    | Myosin light chain cytoplasmic                     |
| CG8439  | 136   | 2    | T-c complex Clapeyronin 5                       | CG7425  | 42    | 1    | effete   |
| CG5366  | 134   | 2    | Cullin-associated and neddylation-dissociated 1 | CG10045 | 41    | 1    | Glutathione S-transferase D1                       |
| CG11793 | 121   | 1    | Superoxide dismutase                            | CG11512 | 41    | 1    | Glutathione S-transferase D4                       |
| CG1633  | 119   | 3    | thioredoxin peroxidase 1                        | CG8542  | 36    | 1    | Heat shock protein cognate 5                       |
| CG1782  | 114   | 2    | Ubiquitin activating enzyme 1                   | CG8740  | 35    | 1    | CG8740   |
| CG5252  | 105   | 1    | Ranbp9  | CG8905  | 34    | 1    | Superoxide dismutase 2 (Mn)                        |
| CG4898  | 104   | 2    | Tropomyosin 1                                   | CG5371  | 34    | 1    | Ribonucleoside diphosphate reductase large subunit |
| CG1489  | 101   | 1    | Regulatory particle triple-A ATPase 6           | CG4200  | 33    | 1    | small wing   |
| CG11876 | 101   | 2    | CG11876   | CG2168  | 33    | 1    | Ribosomal protein S3A                              |
| CG12233 | 99    | 2    | lethal (1)D156                                  | CG9913  | 33    | 1    | Kinesin family member 19A ortholog                 |
| CG17246 | 97    | 3    | Succinate dehydrogenase A                       | CG11522 | 33    | 1    | Ribosomal protein L6                               |
| CG4169  | 96    | 1    | Ubiquinol-cytochrome c reductase core protein 2 | CG1387  | 32    | 1    | embargoed  |
| CG4254  | 95    | 1    | twinstar  | CG12836 | 32    | 1    | CG12836  |
| CG3024  | 95    | 1    | Torsin  | CG17870 | 31    | 1    | 14-3-3   |
| CG8947  | 90    | 1    | 26-29kD-proteinase                              | CG32683 | 31    | 1    | CG32683  |
| CG6439  | 88    | 2    | CG6439  | CG2925  | 30    | 1    | noisette   |
| CG4898  | 87    | 1    | Tropomyosin 1                                   | CG14206 | 30    | 1    | Ribosomal protein S10b                             |
| CG4898  | 87    | 1    | Tropomyosin 1                                   | CG3098  | 30    | 1    | CG3098   |
| CG4898  | 87    | 1    | Tropomyosin 1                                   |         |       |      |  |
| CG4898  | 87    | 1    | Tropomyosin 1                                   |         |       |      |  |
| CG7010  | 85    | 1    | lethal (1)D334                                  |         |       |      |  |
| CG3751  | 85    | 1    | Ribosomal protein S24                           |         |       |      |  |
| CG4581  | 78    | 1    | Thiolase  |         |       |      |  |
| CG8351  | 78    | 1    | Tcp-1   |         |       |      |  |

**table S1B pUb-Sas6-GFP purification from syncytial *Drosophila* embryos in extracts containing 440mM NaCl**

| CG #    | Score | #pep | Full name   |
|---------|-------|------|---|
| CG15524 | 5900  | 123  | spindle assembly abnormal 6                         |
| CG33052 | 1641  | 27   | CG33052   |
| CG4264  | 933   | 21   | Heat shock protein cognate 4                        |
| CG1913  | 458   | 7    | -Tubulin at 84B                                     |
| CG2979  | 455   | 8    | Yolk protein 2                                      |
| CG8280  | 440   | 11   | Elongation factor 1 48D                             |
| CG4634  | 436   | 8    | Nucleosome remodeling factor - 38kD                 |
| CG9277  | 433   | 10   | -Tubulin at 56D                                     |
| CG4634  | 407   | 7    | Nucleosome remodeling factor - 38kD                 |
| CG7808  | 361   | 6    | Ribosomal protein S8                                |
| CG9277  | 326   | 9    | -Tubulin at 56D                                     |
| CG9476  | 323   | 5    | -Tubulin at 85E                                     |
| CG4916  | 311   | 7    | maternal expression at 31B                          |
| CG11129 | 309   | 4    | Yolk protein 3                                      |
| CG1782  | 309   | 6    | Ubiquitin activating enzyme 1                       |
| CG1873  | 280   | 7    | Elongation factor 1 100E                            |
| CG1873  | 280   | 7    | Elongation factor 1 100E                            |
| CG1873  | 280   | 7    | Elongation factor 1 100E                            |
| CG1873  | 280   | 7    | Elongation factor 1 100E                            |
| CG17246 | 276   | 5    | Succinyl coenzyme A synthetase flavoprotein subunit |
| CG9277  | 273   | 8    | -Tubulin at 56D                                     |
| CG9277  | 273   | 8    | -Tubulin at 56D                                     |
| CG7660  | 268   | 3    | pxt   |
| CG4147  | 258   | 4    | Heat shock protein cognate 3                        |
| CG8937  | 226   | 4    | Heat shock protein cognate 1                        |
| CG8251  | 216   | 3    | Phosphoglucose isomerase                            |
| CG2985  | 216   | 4    | Yolk protein 1                                      |
| CG16944 | 212   | 4    | stress-sensitive B                                  |
| CG2168  | 207   | 5    | Ribosomal protein S3A                               |
| CG8308  | 201   | 2    | -Tubulin at 67C                                     |
| CG8937  | 191   | 3    | Heat shock protein cognate 1                        |
| CG8937  | 191   | 3    | Heat shock protein cognate 1                        |
| CG5252  | 191   | 2    | Ranbp9  |
| CG4169  | 186   | 2    | CG4169  |
| CG9359  | 179   | 6    | -Tubulin at 85D                                     |
| CG5920  | 173   | 3    | Ribosomal protein S2                                |
| CG7033  | 173   | 2    | CG7033  |
| CG10489 | 168   | 2    | Pole 2  |
| CG5436  | 166   | 2    | Heat shock protein 68                               |
| CG3922  | 166   | 4    | Ribosomal protein S17                               |
| CG8947  | 166   | 2    | 26-29kD-proteinase                                  |
| CG8262  | 164   | 2    | anastal spindle 2                                   |
| CG7014  | 155   | 2    | Ribosomal protein S5b                               |
| CG6439  | 153   | 4    | CG6439  |
| CG2168  | 148   | 3    | Ribosomal protein S3A                               |
| CG6235  | 145   | 2    | twins   |
| CG1349  | 144   | 3    | dj-1  |
| CG4863  | 139   | 3    | Ribosomal protein L3                                |
| CG10686 | 136   | 2    | trailer hitch                                       |
| CG8900  | 134   | 3    | Ribosomal protein S18                               |
| CG17521 | 133   | 1    | Ribosomal protein L10                               |
| CG9748  | 124   | 1    | bel le  |
| CG8231  | 115   | 2    | T-cpl   |
| CG4254  | 114   | 1    | twinstar  |
| CG5371  | 113   | 3    | Ribonucleoside diphosphate reductase large subunit  |
| CG6779  | 112   | 2    | Ribosomal protein S3                                |
| CG5366  | 112   | 1    | Cullin-associated and neddylation-dissociated 1     |
| CG2238  | 111   | 2    | Elongation factor 2b                                |
| CG3195  | 111   | 2    | Ribosomal protein L12                               |
| CG6253  | 110   | 2    | Ribosomal protein L14                               |
| CG1633  | 110   | 2    | thioredoxin peroxidase 1                            |
| CG8439  | 106   | 2    | T-complex Clapeyron 5                               |
| CG7490  | 105   | 2    | Ribosomal protein LP0                               |
| CG10535 | 101   | 1    | Elongation complex protein 1                        |
| CG11276 | 99    | 2    | Ribosomal protein S4                                |
| CG8857  | 94    | 2    | Ribosomal protein S11                               |
| CG13281 | 93    | 1    | CAS/CSE1 segregation protein                        |
| CG11943 | 93    | 2    | Nucleoporein 205                                    |
| CG3612  | 92    | 1    | bel wether  |
| CG10652 | 92    | 1    | Ribosomal protein L30                               |
| CG3752  | 91    | 1    | Aldehyde dehydrogenase                              |
| CG1837  | 91    | 1    | preceptor   |
| CG8893  | 90    | 1    | Glyceroldehyde 3 phosphate dehydrogenase 2          |

|         |    |   |   |
|---------|----|---|---|
| CG3180  | 88 | 1 | Ranbp16   |
| CG2960  | 87 | 2 | Ribosomal protein L40                                 |
| CG8415  | 87 | 1 | Ribosomal protein S23                                 |
| CG11522 | 87 | 1 | Ribosomal protein L6                                  |
| CG7340  | 87 | 1 | granny smith  |
| CG3661  | 84 | 2 | Ribosomal protein L23                                 |
| CG6543  | 84 | 1 | CG6543  |
| CG3751  | 84 | 1 | Ribosomal protein S24                                 |
| CG11793 | 83 | 1 | Superoxide dismutase                                  |
| CG1129  | 83 | 1 | CG1129  |
| CG12101 | 82 | 1 | Heat shock protein 60                                 |
| CG686   | 82 | 1 | Transferrin 1   |
| CG1372  | 81 | 1 | yolkless  |
| CG2151  | 81 | 1 | Thioredoxin reductase-1                               |
| CG2046  | 80 | 1 | CG2046  |
| CG9075  | 79 | 1 | Eukaryote initiation factor 4a                        |
| CG203   | 79 | 1 | Ribosomal protein L17                                 |
| CG8922  | 77 | 1 | Ribosomal protein S3a                                 |
| CG17286 | 76 | 1 | spindle defective 2                                   |
| CG17291 | 75 | 1 | Protein phosphatase 2A at 29B                         |
| CG301   | 74 | 1 | -Tubulin at 60D                                       |
| CG869   | 74 | 1 | -Tubulin at 97EF                                      |
| CG869   | 74 | 1 | -Tubulin at 97EF                                      |
| CG11154 | 74 | 1 | ATP synthase, subunit                                 |
| CG6880  | 74 | 1 | CG6180  |
| CG8963  | 74 | 1 | CG8963  |
| CG1218  | 73 | 1 | CG1218  |
| CG6813  | 73 | 1 | endosulfine   |
| CG9677  | 70 | 1 | Int6 homologue  |
| CG12202 | 68 | 1 | Nat 1   |
| CG12233 | 67 | 2 | lethal (1) G0156                                      |
| CG898   | 65 | 2 | Tropomyosin 1   |
| CG1945  | 65 | 1 | fat facets  |
| CG15442 | 65 | 1 | Ribosomal protein L27A                                |
| CG4087  | 64 | 1 | Ribosomal protein LP1                                 |
| CG641   | 61 | 1 | Ribosomal protein L9                                  |
| CG581   | 61 | 1 | Thiolase  |
| CG9769  | 61 | 1 | CG9769  |
| CG11001 | 60 | 1 | FK506-binding protein 2                               |
| CG7111  | 60 | 1 | Receptor of activated protein kinase C 1              |
| CG17333 | 60 | 1 | CG17333   |
| CG9282  | 60 | 1 | Ribosomal protein L24                                 |
| CG3379  | 59 | 1 | Histone H4 replacement                                |
| CG3455  | 58 | 1 | Regulatory particle triple-A ATPase 4                 |
| CG17566 | 55 | 1 | -Tubulin at 37C                                       |
| CG852   | 54 | 1 | CG6852  |
| CG10198 | 54 | 1 | Nucleoporin 98-96                                     |
| CG8740  | 53 | 4 | CG8740  |
| CG1683  | 52 | 1 | Adenine nucleotide translocase 2                      |
| CG1683  | 52 | 1 | Adenine nucleotide translocase 2                      |
| CG15697 | 52 | 1 | Ribosomal protein S30                                 |
| CG1524  | 49 | 1 | Ribosomal protein S4a                                 |
| CG2982  | 49 | 1 | CG2982  |
| CG604   | 48 | 1 | Glycogen synthase                                     |
| CG4046  | 47 | 1 | Ribosomal protein S16                                 |
| CG8495  | 47 | 1 | Ribosomal protein S29                                 |
| CG11064 | 45 | 1 | Retinoid- and fatty acid-binding glycoprotein         |
| CG9012  | 44 | 1 | Clathrin heavy chain                                  |
| CG18572 | 44 | 1 | midlineary  |
| CG395   | 44 | 1 | Ribosomal protein S9                                  |
| CG1822  | 44 | 1 | Gammainterferon-inducible lysosomal thiol reductase 3 |
| CG17754 | 42 | 1 | CG17754   |
| CG408   | 42 | 1 | CG4408  |
| CG1569  | 41 | 1 | rough deal  |
| CG31618 | 41 | 1 | His2A-CG31618   |
| CG18001 | 40 | 1 | Ribosomal protein L38                                 |
| CG10944 | 40 | 1 | Ribosomal protein S6                                  |
| CG1242  | 39 | 1 | Heat shock protein 83                                 |
| CG12708 | 39 | 1 | CG12708   |
| CG17870 | 38 | 1 | 14-3-3  |
| CG400   | 38 | 1 | Fatty acid (long chain) transport protein             |
| CG10045 | 37 | 1 | Glutathione S-transferase D1                          |
| CG1048  | 37 | 1 | discs overgrown                                       |
| CG6177  | 37 | 2 | ldlCp-related protein                                 |
| CG439   | 37 | 1 | Argonaute 2   |
| CG8036  | 36 | 1 | CG8036  |

|         |    |   |                                    |
|---------|----|---|------------------------------------|
| CG1009  | 36 | 1 | Puromycin sensitive aminopeptidase |
| CG7437  | 36 | 1 | mushroom-body expressed            |
| CG15693 | 35 | 1 | Ribosomal protein S20              |
| CG4898  | 34 | 1 | Tropomyosin 1                      |
| CG4898  | 34 | 1 | Tropomyosin 1                      |
| CG4898  | 34 | 1 | Tropomyosin 1                      |
| CG4898  | 34 | 1 | Tropomyosin 1                      |
| CG4898  | 34 | 1 | Tropomyosin 1                      |

|         |    |   |               |
|---------|----|---|---------------|
| CG4898  | 34 | 1 | Tropomyosin 1 |
| CG4898  | 34 | 1 | Tropomyosin 1 |
| CG4898  | 34 | 1 | Tropomyosin 1 |
| CG4898  | 34 | 1 | Tropomyosin 1 |
| CG4898  | 34 | 1 | Tropomyosin 1 |
| CG17904 | 34 | 1 | CG17904       |

**table S1C. pUb-Sas6-GFP purification from syncytial *Drosophila* embryo extracts treated 440mM NaCl and Okadaic Acid**

| CG #    | Score | #pep | Full name  |
|---------|-------|------|--|
| CG15524 | 4677  | 131  | spindle assembly abnormal 6                        |
| CG33052 | 1380  | 27   | CG33052  |
| CG4264  | 586   | 12   | Heat shock protein cognate 4                       |
| CG8280  | 292   | 7    | Elongation factor 1 48D                            |
| CG4634  | 253   | 4    | Nucleosome remodeling factor - 38kD                |
| CG1913  | 210   | 4    | -Tubulin at 84B                                    |
| CG1873  | 173   | 4    | Elongation factor 1 100E                           |
| CG1873  | 173   | 4    | Elongation factor 1 100E                           |
| CG1873  | 173   | 4    | Elongation factor 1 100E                           |
| CG1873  | 173   | 4    | Elongation factor 1 100E                           |
| CG8937  | 170   | 3    | Heat shock protein cognate 1                       |
| CG9277  | 145   | 3    | -Tubulin at 56D                                    |
| CG8937  | 138   | 2    | Heat shock protein cognate 1                       |
| CG8937  | 138   | 2    | Heat shock protein cognate 1                       |
| CG17246 | 135   | 3    | Succinate dehydrogenase A                          |
| CG17521 | 123   | 2    | Ribosomal protein L10                              |
| CG6235  | 114   | 1    | twins  |
| CG4147  | 112   | 1    | Heat shock protein cognate 3                       |
| CG4147  | 112   | 1    | Heat shock protein cognate 3                       |
| CG4147  | 112   | 1    | Heat shock protein cognate 3                       |
| CG4147  | 112   | 1    | Heat shock protein cognate 3                       |
| CG5436  | 112   | 1    | Heat shock protein 68                              |
| CG2979  | 104   | 3    | Yolk protein 2                                     |
| CG3751  | 98    | 2    | Ribosomal protein S24                              |
| CG6779  | 90    | 2    | Ribosomal protein S3                               |
| CG4916  | 90    | 2    | maternal expression at 31B                         |
| CG9359  | 85    | 2    | -Tubulin at 85D                                    |
| CG5920  | 85    | 1    | Ribosomal protein S2                               |
| CG8251  | 82    | 1    | Phosphoglucose isomerase                           |
| CG10652 | 82    | 1    | Ribosomal protein L30                              |
| CG3203  | 79    | 1    | Ribosomal protein L17                              |
| CG2960  | 78    | 2    | Ribosomal protein L40                              |
| CG10045 | 76    | 1    | Guthrie transferase D1                             |
| CG11512 | 76    | 1    | Guthrie transferase D4                             |
| CG5371  | 75    | 1    | Ribonucleoside diphosphate reductase large subunit |

|         |    |   |   |
|---------|----|---|---|
| CG8900  | 74 | 1 | Ribosomal protein S18                       |
| CG6253  | 72 | 1 | Ribosomal protein L14                       |
| CG9476  | 69 | 2 | -Tubulin at 85E                             |
| CG7660  | 68 | 1 | Penicillin-like                             |
| CG661   | 67 | 1 | Ribosomal protein L23                       |
| CG863   | 65 | 2 | Ribosomal protein L3                        |
| CG8857  | 62 | 1 | Ribosomal protein S11                       |
| CG10944 | 58 | 2 | Ribosomal protein S6                        |
| CG1633  | 58 | 1 | thioredoxin peroxidase 1                    |
| CG1276  | 56 | 1 | Ribosomal protein S4                        |
| CG2168  | 54 | 1 | Ribosomal protein S3A                       |
| CG1129  | 50 | 1 | Ydk protein 3                               |
| CG10811 | 49 | 1 | eukaryotic translation initiation factor 4G |
| CG7340  | 48 | 1 | gannysmith                                  |
| CG8495  | 47 | 1 | Ribosomal protein S29                       |
| CG10489 | 43 | 1 | Pole2                                       |
| CG4466  | 41 | 1 | Heat shock protein 27                       |
| CG4898  | 39 | 1 | Tropomyosin 1                               |
| CG12708 | 39 | 1 | CG12708                                     |
| CG10538 | 38 | 1 | CGAPr                                       |
| CG8963  | 38 | 1 | CG8963                                      |
| CG2668  | 37 | 1 | Protein ejaculatory bulb                    |
| CG9922  | 37 | 1 | Ribosomal protein S17                       |
| CG17870 | 36 | 1 | 14-3-3                                      |
| CG4863  | 35 | 1 | Ribosomal protein L3                        |
| CG4863  | 35 | 1 | Ribosomal protein L3                        |
| CG8740  | 35 | 1 | CG8740                                      |
| CG4046  | 34 | 1 | Ribosomal protein S16                       |
| CG2082  | 34 | 1 | CG32082                                     |
| CG6509  | 33 | 1 | Discs large 5                               |
| CG12836 | 33 | 1 | CG12836                                     |
| CG6177  | 32 | 1 | ldl Cp-related protein                      |

**table S1D. pMT-PrA-Sas6 purification from MG132-treated *Drosophila* cultured cells**

| CG #    | Score | #pep | Full name                      |
|---------|-------|------|--------------------------------|
| CG15524 | 4576  | 281  | spindle assembly abnormal 6    |
| CG4264  | 1587  | 111  | Heat shock protein cognate 4   |
| CG9277  | 1404  | 51   | -Tubulin at 56D                |
| CG1913  | 919   | 47   | -Tubulin at 84B                |
| CG3401  | 329   | 19   | -Tubulin at 60D                |
| CG5834  | 299   | 23   | Hsp70Bb                        |
| CG1524  | 223   | 6    | Ribosomal protein S14a         |
| CG4463  | 198   | 9    | Heat shock protein 23          |
| CG7434  | 175   | 6    | Ribosomal protein L22          |
| CG2960  | 139   | 4    | Ribosomal protein L40          |
| CG12051 | 114   | 5    | Actin 42A                      |
| CG4466  | 94    | 3    | Heat shock protein 27          |
| CG11522 | 87    | 3    | Ribosomal protein L6           |
| CG8274  | 84    | 2    | Megator                        |
| CG15697 | 84    | 3    | Ribosomal protein S30          |
| CG4183  | 83    | 3    | Heat shock protein 26          |
| CG3201  | 81    | 3    | Myosin light chain cytoplasmic |
| CG6684  | 76    | 2    | Ribosomal protein S25          |
| CG10944 | 76    | 4    | Ribosomal protein S6           |
| CG12775 | 73    | 1    | Ribosomal protein L21          |
| CG33052 | 69    | 5    | CG33052                        |
| CG7808  | 64    | 3    | Ribosomal protein S8           |
| CG6253  | 62    | 3    | Ribosomal protein L14          |
| CG9282  | 61    | 3    | Ribosomal protein L24          |

|         |    |   |                                |
|---------|----|---|--------------------------------|
| CG13389 | 60 | 2 | Ribosomal protein S18          |
| CG11276 | 59 | 1 | Ribosomal protein S4           |
| CG1354  | 59 | 3 | CG1354                         |
| CG9795  | 57 | 1 | CG9795                         |
| CG4087  | 56 | 2 | Ribosomal protein L19          |
| CG2746  | 56 | 1 | Ribosomal protein L19          |
| CG3395  | 54 | 3 | Ribosomal protein S9           |
| CG10824 | 54 | 1 | Common Dpr-interacting protein |
| CG8900  | 52 | 1 | Ribosomal protein S18          |
| CG10465 | 50 | 2 | CG10465                        |
| CG1873  | 49 | 1 | Elongation factor 1 100E       |
| CG15442 | 49 | 1 | Ribosomal protein L27A         |
| CG7622  | 48 | 1 | Ribosomal protein L36          |
| CG12109 | 47 | 2 | Caf1-180                       |
| CG2168  | 46 | 2 | Ribosomal protein S3A          |
| CG11734 | 46 | 1 | HERC2                          |
| CG5119  | 44 | 1 | polyA-binding protein          |
| CG4651  | 44 | 1 | Ribosomal protein L13          |
| CG821   | 44 | 1 | Ribosomal protein L31          |
| CG3203  | 44 | 1 | Ribosomal protein L17          |
| CG8615  | 44 | 2 | Ribosomal protein L18          |
| CG1050  | 42 | 2 | modulo                         |
| CG463   | 42 | 1 | Ribosomal protein L3           |
| CG9680  | 41 | 1 | Dead box protein 73D           |
| CG2998  | 41 | 1 | Ribosomal protein S28b         |

|         |    |   |                              |
|---------|----|---|------------------------------|
| CG17521 | 40 | 1 | Qm                           |
| CG4897  | 38 | 2 | Ribosomal protein L7         |
| CG14025 | 37 | 1 | Blastoderm-specific gene 25D |
| CG5920  | 35 | 1 | string of pearls             |
| CG3253  | 35 | 1 | CG3253                       |
| CG7490  | 34 | 1 | Ribosomal protein LP0        |
| CG4631  | 34 | 2 | CG4631                       |
| CG8735  | 34 | 1 | CG8735                       |
| CG17034 | 34 | 1 | CG17034                      |

|         |    |   |                         |
|---------|----|---|-------------------------|
| CG7946  | 31 | 1 | CG7946                  |
| CG6846  | 30 | 1 | Ribosomal protein L26   |
| CG8415  | 29 | 1 | Ribosomal protein S23   |
| CG8947  | 28 | 1 | 26-29kD-proteinase      |
| CG1506  | 27 | 1 | Ac3                     |
| CG31551 | 27 | 2 | CG31551                 |
| CG7283  | 25 | 1 | Ribosomal protein L10Ab |
| CG6773  | 0  | 1 | sec13                   |

**table S1E pMT-PrA-Sas6 purification from MG132 and Okadaic acid treated *Drosophila* cultured cells**

| CG #    | Score | #pep | Full name                      |
|---------|-------|------|--------------------------------|
| CG15524 | 4606  | 280  | spindle assembly abnormal 6    |
| CG15792 | 1530  | 86   | zipper                         |
| CG4264  | 1499  | 83   | Heat shock protein cognate 4   |
| CG4027  | 974   | 46   | Actin 5C                       |
| CG1913  | 710   | 36   | -Tubulin at 84B                |
| CG10067 | 558   | 23   | Actin 57B                      |
| CG9277  | 296   | 16   | -Tubulin at 56D                |
| CG2960  | 263   | 8    | Ribosomal protein L40          |
| CG3201  | 261   | 14   | Myosin light chain cytoplasmic |
| CG3595  | 122   | 6    | spaghetti squash               |
| CG4183  | 102   | 5    | Heat shock protein 26          |
| CG8274  | 81    | 3    | Megator                        |
| CG2050  | 64    | 4    | modulo                         |
| CG8578  | 61    | 1    | CG8578                         |
| CG4145  | 58    | 1    | Collagen type IV               |
| CG4463  | 55    | 1    | Heat shock protein 23          |
| CG33052 | 55    | 2    | CG33052                        |
| CG8472  | 54    | 2    | Calmodulin                     |

|         |    |   |                         |
|---------|----|---|-------------------------|
| CG7438  | 42 | 2 | Myosin 31DF             |
| CG17158 | 41 | 1 | capping protein beta    |
| CG4466  | 39 | 1 | Heat shock protein 27   |
| CG8280  | 38 | 1 | Elongation factor 1 48D |
| CG5588  | 38 | 1 | Mg-2-like               |
| CG8735  | 37 | 2 | CG8735                  |
| CG13708 | 36 | 1 | CG13708                 |
| CG17034 | 34 | 1 | CG17034                 |
| CG1624  | 32 | 1 | Repressed by TOR        |
| CG2025  | 32 | 1 | desert                  |
| CG3958  | 31 | 1 | CG3958                  |
| CG4898  | 30 | 1 | Thompsonin 1            |
| CG7595  | 29 | 1 | crinkled                |
| CG11384 | 29 | 1 | CG11384                 |
| CG3253  | 29 | 1 | CG3253                  |
| CG31551 | 26 | 2 | CG31551                 |
| CG4444  | 25 | 1 | plexus                  |
| CG6428  | 0  | 1 | CG6428                  |

## table S2A-E. Purification of Sas6 associated proteins

*Drosophila* proteins are named according to FlyBase. Where indicated, cultured cells were treated with 25µM MG132 for up to 5 h and/or 50nM okadaic acid for 9 to 16 h. Heat shock proteins, ribosomal and translation associated proteins, actomyosin- and microtubule-associated proteins were consistently identified in control purifications of GFP or protein A or with proteins having kinetochore or cytokinesis functions.

## table S2A. pUb-GFP-GORAB purification from syncytial *Drosophila* embryos

| CG #    | Score | #pep | Full name  |
|---------|-------|------|--|
| CG33052 | 2764  | 50   | CG33052  |
| CG4264  | 1590  | 25   | Heat shock protein cognate 4                                 |
| CG8280  | 1028  | 15   | Elongation factor 1-48D                                      |
| CG15524 | 752   | 18   | Spindle assembly abnormal 6 ortholog (C. elegans)            |
| CG9277  | 731   | 17   | -Tubulin at 56D  |
| CG9277  | 656   | 14   | -Tubulin at 56D  |
| CG9359  | 506   | 11   | -Tubulin at 85D  |
| CG4147  | 439   | 6    | Heat shock 70-kDa protein cognate 3                          |
| CG8937  | 438   | 5    | Heat shock protein cognate 1                                 |
| CG8937  | 389   | 4    | Heat shock protein cognate 1                                 |
| CG18743 | 386   | 4    | Heat-shock-protein-70Ab                                      |
| CG2979  | 345   | 6    | Yolk protein 2   |
| CG4466  | 321   | 6    | Heat shock protein 27  |
| CG11129 | 315   | 7    | Yolk protein 3   |
| CG3401  | 308   | 9    | -Tubulin at 60D  |
| CG1349  | 307   | 4    | di-1   |
| CG1873  | 300   | 6    | Elongation factor 1-100E                                     |
| CG7756  | 277   | 3    | Heat shock protein cognate 2                                 |
| CG4169  | 254   | 4    | Ubiquinol-cytochrome c reductase core protein 2              |
| CG10521 | 241   | 58   | Netrin-B   |
| CG4869  | 233   | 7    | -Tubulin at 97EF   |
| CG7660  | 232   | 3    | Peroxisectin-like  |
| CG1913  | 215   | 5    | -Tubulin at 84B  |
| CG17246 | 179   | 2    | Succinate dehydrogenase A                                    |
| CG9476  | 177   | 4    | -Tubulin at 85E  |
| CG17291 | 173   | 3    | Protein phosphatase 2A at 29B                                |
| CG3283  | 169   | 4    | Succinate dehydrogenase B                                    |
| CG5366  | 161   | 2    | Cullin-associated and neddylation-dissociated 1              |
| CG4916  | 141   | 3    | maternal expression at 31B                                   |
| CG8863  | 139   | 2    | DnaI-like-2  |
| CG4183  | 133   | 2    | Heat shock protein 26  |
| CG33129 | 129   | 19   | CG33129  |
| CG4634  | 126   | 2    | Nucleosome remodeling factor - 38kD                          |
| CG15825 | 121   | 1    | fondue   |
| CG10377 | 118   | 1    | Heterogeneous nuclear ribonucleoprotein at 27C               |
| CG12233 | 116   | 3    | lethal (1)D156   |
| CG1263  | 114   | 1    | Ribosomal protein L8   |
| CG12306 | 113   | 1    | polo   |
| CG16944 | 110   | 6    | stress-sensitive B   |
| CG7349  | 104   | 2    | Succinate dehydrogenase, subunit B (iron-sulfur)-like        |
| CG6235  | 101   | 2    | twins  |
| CG14648 | 100   | 3    | lost   |
| CG1548  | 97    | 2    | cauldD   |
| CG5371  | 94    | 2    | Ribonucleoside diphosphate reductase large subunit           |
| CG5499  | 88    | 2    | Histone H2A variant  |
| CG5261  | 87    | 2    | midline uncoordinated  |
| CG13422 | 87    | 1    | GNBP-like 3  |
| CG12262 | 83    | 1    | CG12262  |
| CG11181 | 80    | 1    | cup  |
| CG2985  | 80    | 4    | Yolk protein 1   |
| CG2168  | 77    | 1    | Ribosomal protein S3A  |
| CG8947  | 77    | 1    | 26-29kD-proteinase   |
| CG11793 | 69    | 2    | Superoxide dismutase   |
| CG4916  | 69    | 2    | maternal expression at 31B                                   |
| CG1372  | 67    | 1    | yolkless   |
| CG15693 | 66    | 1    | Ribosomal protein S20  |
| CG8308  | 64    | 2    | -Tubulin at 67C  |
| CG1683  | 64    | 1    | Adenine nucleotide translocase 2                             |
| CG3203  | 64    | 1    | Ribosomal protein L17  |
| CG1242  | 59    | 1    | Heat shock protein 83  |
| CG1782  | 59    | 2    | Ubiquitin activating enzyme 1                                |
| CG12244 | 58    | 2    | licorne  |
| CG7361  | 57    | 1    | Rieske iron-sulfur protein                                   |
| CG4193  | 56    | 1    | deadhead   |
| CG4863  | 56    | 1    | Ribosomal protein L3   |
| CG5304  | 53    | 1    | lethal (2) tumorous imaginal discs                           |
| CG11276 | 53    | 1    | Ribosomal protein S4   |
| CG5302  | 52    | 1    | Ribosomal protein L4   |
| CG3024  | 52    | 1    | Torsin   |
| CG4651  | 51    | 1    | Ribosomal protein L13  |
| CG12052 | 50    | 1    | longitudinal sliding   |
| CG8415  | 50    | 1    | Ribosomal protein S23  |
| CG33456 | 50    | 2    | muscle wasted  |
| CG12369 | 49    | 12   | Lachesin   |
| CG6782  | 49    | 1    | scheegia   |
| CG5252  | 47    | 1    | Ranbp9   |
| CG9738  | 44    | 1    | MAP kinase kinase4   |
| CG7977  | 44    | 1    | Ribosomal protein L23A                                       |
| CG13671 | 44    | 9    | CG13671  |
| CG1633  | 42    | 1    | thioredoxin peroxidase 1                                     |
| CG31884 | 41    | 1    | thioredoxin-2  |
| CG32164 | 40    | 1    | CG32164  |
| CG8905  | 37    | 1    | Superoxide dismutase 2 (Mn)                                  |
| CG5261  | 37    | 1    | midline uncoordinated  |
| CG4752  | 37    | 5    | CG4752   |
| CG31088 | 35    | 3    | CG31088  |
| CG2048  | 34    | 1    | discs overgrown  |
| CG4683  | 34    | 2    | Testis EndoG-Like 4  |
| CG10718 | 33    | 1    | nebbish  |
| CG9012  | 32    | 1    | Clathrin heavy chain   |
| CG6453  | 32    | 1    | Glucosidase 2 - subunit                                      |
| CG1821  | 31    | 1    | Ribosomal protein L31  |
| CG12163 | 31    | 1    | CG12163  |
| CG5263  | 30    | 1    | smaug  |
| CG2982  | 29    | 1    | CG2982   |
| CG9769  | 29    | 1    | CG9769   |
| CG7985  | 28    | 1    | CG7985   |
| CG33322 | 28    | 1    | CG33322  |
| CG32599 | 28    | 1    | CG32599  |
| CG42333 | 28    | 1    | Symptotagmin   |
| CG8246  | 27    | 1    | Pox neuro  |
| CG40478 | 27    | 1    | Dual-specificity tyrosine phosphorylation-regulated kinase 3 |
| CG14961 | 27    | 2    | CG14961  |
| CG10617 | 27    | 1    | Synaptotagmin 12   |
| CG8900  | 26    | 1    | Ribosomal protein S18  |
| CG2179  | 26    | 1    | Xe7  |
| CG16827 | 26    | 1    | Integrin alphaPS4 subunit                                    |
| CG31029 | 26    | 1    | CG31029  |
| CG12079 | 26    | 1    | NADH dehydrogenase (ubiquinone) Fe-S protein 3               |
| CG10594 | 25    | 2    | spook  |
| CG12164 | 25    | 1    | CG12164  |
| CG8907  | 25    | 2    | CG8907   |
| CG7413  | 24    | 1    | Retinoblastoma-family protein                                |
| CG9809  | 24    | 1    | spargel  |
| CG8301  | 23    | 2    | par-1  |
| CG16983 | 22    | 1    | skpA   |
| CG5762  | 22    | 2    | CG5762   |
| CG2050  | 21    | 1    | modulo   |
| CG9537  | 21    | 2    | Daxx-like protein  |
| CG7369  | 21    | 1    | CG7369   |
| CG34434 | 21    | 1    | CG34434  |
| CG12055 | 20    | 1    | Glyceroldehyde 3 phosphate dehydrogenase 1                   |
| CG9081  | 20    | 1    | Cyp4s3   |
| CG10021 | 19    | 1    | brother of odd with entrails limited                         |
| CG9674  | 19    | 1    | CG9674   |
| CG1842  | 18    | 1    | Dynein heavy chain at 89D                                    |
| CG9159  | 18    | 2    | Kruppel homolog 2  |
| CG15744 | 18    | 1    | CG15744  |

|         |    |   |           |
|---------|----|---|-----------|
| CG42346 | 18 | 1 | CG42346   |
| CG8817  | 17 | 1 | liliputan |
| CG30281 | 17 | 1 | CG30281   |
| CG7378  | 16 | 1 | CG7378    |
| CG12836 | 16 | 1 | CG12836   |
| CG3350  | 16 | 1 | bigmax    |
| CG17632 | 15 | 1 | brown     |
| CG11387 | 15 | 1 | cut       |
| CG11254 | 15 | 1 | maelstrom |

|         |    |   |                   |
|---------|----|---|-------------------|
| CG8322  | 15 | 1 | ATP citrate lyase |
| CG6509  | 15 | 1 | Discs large 5     |
| CG11107 | 15 | 1 | DMK15 ortholog    |
| CG9168  | 15 | 1 | CG9168            |
| CG30484 | 15 | 1 | CG30484           |
| CG10375 | 14 | 1 | CG10375           |

**table S2B pUb-GFP-GORAB purification from cultured *Drosophila* cells**

| CG #    | Score | #pep | Full name  |
|---------|-------|------|--|
| CG33052 | 18036 | 290  | CG33052  |
| CG4264  | 4556  | 65   | Heat shock protein cognate 4                       |
| CG9277  | 4140  | 56   | -Tubulin at 56D                                    |
| CG9277  | 3875  | 52   | -Tubulin at 56D                                    |
| CG1913  | 3031  | 48   | -Tubulin at 84B                                    |
| CG8280  | 2423  | 38   | Elongation factor 1 48D                            |
| CG17949 | 2364  | 37   | His2B:CG17949                                      |
| CG4147  | 2315  | 35   | Heat shock 70-kDa protein cognate 3                |
| CG3401  | 2055  | 34   | -Tubulin at 60D                                    |
| CG9476  | 1947  | 32   | -Tubulin at 85E                                    |
| CG1528  | 1792  | 29   | Coat Protein (coat mer)                            |
| CG12051 | 1712  | 26   | Actin 42A  |
| CG4027  | 1575  | 25   | Actin 5C   |
| CG31613 | 1557  | 42   | His3:CG31613                                       |
| CG12065 | 1513  | 30   | CG12065  |
| CG3379  | 1458  | 29   | Histone H4 replacement                             |
| CG2238  | 1426  | 22   | Elongation factor 2                                |
| CG9359  | 1367  | 29   | -Tubulin at 85D                                    |
| CG8937  | 1334  | 14   | Heat shock protein cognate 1                       |
| CG33869 | 1314  | 25   | His4:CG33869                                       |
| CG5825  | 1290  | 42   | Histone H3.3A                                      |
| CG6223  | 1263  | 19   | Coat Protein (coat mer)                            |
| CG12065 | 1259  | 28   | CG12065  |
| CG10067 | 1255  | 17   | Actin 57B  |
| CG31618 | 1200  | 20   | His2A:CG31618                                      |
| CG7478  | 1157  | 15   | Actin 79B  |
| CG5520  | 1146  | 20   | Glycoprotein 93                                    |
| CG5178  | 1112  | 16   | Actin 88F  |
| CG7961  | 1106  | 26   | Coat Protein (coat mer)                            |
| CG9748  | 1062  | 17   | bel le   |
| CG8937  | 1038  | 9    | Heat shock protein cognate 1                       |
| CG1873  | 1032  | 19   | Elongation factor 1 100E                           |
| CG6718  | 1016  | 21   | calcium-independent phospholipase A2 VIA           |
| CG3752  | 903   | 11   | Aldehyde dehydrogenase                             |
| CG7439  | 899   | 14   | Argonate 2   |
| CG2216  | 886   | 16   | Ferritin 1 heavy chain homologue                   |
| CG10279 | 874   | 11   | Rm62   |
| CG4869  | 861   | 17   | -Tubulin at 97EF                                   |
| CG2216  | 829   | 15   | Ferritin 1 heavy chain homologue                   |
| CG9888  | 773   | 16   | Fibrillarin  |
| CG9012  | 763   | 14   | Clathrin heavy chain                               |
| CG5825  | 754   | 37   | Histone H3.3A                                      |
| CG2331  | 740   | 13   | TER94  |
| CG2216  | 711   | 14   | Ferritin 1 heavy chain homologue                   |
| CG18743 | 706   | 8    | Heat-shock-protein-70Ab                            |
| CG6871  | 694   | 10   | Catalase   |
| CG32626 | 671   | 16   | AMP deaminase                                      |
| CG7583  | 655   | 11   | C-terminal Binding Protein                         |
| CG4897  | 622   | 10   | Ribosomal protein L7                               |
| CG7756  | 620   | 9    | Heat shock protein cognate 2                       |
| CG5261  | 619   | 11   | midline uncoordinated                              |
| CG12030 | 598   | 14   | UDP-galactose 4-epimerase                          |
| CG5119  | 587   | 9    | polyA-binding protein                              |
| CG2151  | 586   | 8    | Thioredoxin reductase-1                            |
| CG1250  | 582   | 7    | sec23  |
| CG10701 | 562   | 13   | Moesin   |
| CG12389 | 541   | 7    | Farnesyl pyrophosphate synthase                    |
| CG5502  | 537   | 10   | Ribosomal protein L4                               |
| CG1349  | 536   | 7    | dj-1   |
| CG10701 | 527   | 12   | Moesin   |
| CG16944 | 526   | 14   | stress-sensitive B                                 |
| CG18212 | 510   | 8    | aluminum tubes                                     |
| CG11522 | 494   | 10   | Ribosomal protein L6                               |
| CG1242  | 487   | 10   | Heat shock protein 83                              |
| CG9075  | 486   | 9    | Eukaryotic initiation factor 4a                    |
| CG8983  | 484   | 10   | ERP60  |
| CG4581  | 483   | 11   | Thiolase   |
| CG4347  | 478   | 7    | UGP  |
| CG10206 | 473   | 8    | nop5   |
| CG1973  | 456   | 6    | yata   |
| CG5353  | 428   | 6    | Threonyl-tRNA synthetase                           |
| CG5371  | 425   | 7    | Ribonucleoside diphosphate reductase large subunit |

|         |     |   |  |
|---------|-----|---|--|
| CG4863  | 425 | 5 | Ribosomal protein L3                           |
| CG7380  | 424 | 8 | barrier to autointegration factor              |
| CG2331  | 419 | 6 | TER94  |
| CG5261  | 402 | 7 | midline uncoordinated                          |
| CG5920  | 395 | 5 | Ribosomal protein S2                           |
| CG10922 | 392 | 5 | La autoantigen-like                            |
| CG4863  | 387 | 4 | Ribosomal protein L3                           |
| CG1276  | 384 | 7 | Ribosomal protein S4                           |
| CG1489  | 384 | 7 | Regulatory particle triple-A ATPase 6          |
| CG5988  | 382 | 7 | Protein disulfide isomerase                    |
| CG1472  | 382 | 6 | Sec24AB ortholog (H. sapiens)                  |
| CG6779  | 362 | 8 | Ribosomal protein S5                           |
| CG6543  | 362 | 7 | CG6543   |
| CG4389  | 361 | 9 | Mitochondrial tri functional protein subunit   |
| CG612   | 355 | 5 | bel l wether                                   |
| CG14648 | 353 | 6 | lost   |
| CG3314  | 352 | 6 | Ribosomal protein L7A                          |
| CG4999  | 351 | 8 | Histone H2A variant                            |
| CG916   | 345 | 5 | maternal expression at 31B                     |
| CG1404  | 340 | 6 | Ran  |
| CG577   | 328 | 5 | CG9577   |
| CG10944 | 323 | 6 | Ribosomal protein S6                           |
| CG6699  | 322 | 8 | Coat Protein (coat mer)                        |
| CG1475  | 320 | 7 | Ribosomal protein L13A                         |
| CG2918  | 318 | 4 | CG2918   |
| CG2098  | 317 | 7 | Ferrochelatase                                 |
| CG7762  | 313 | 5 | Regulatory particle non-ATPase 1               |
| CG10990 | 310 | 5 | Programmed cell death 4 ortholog               |
| CG10882 | 309 | 6 | stenosis                                       |
| CG7111  | 308 | 8 | Receptor of activated protein kinase C 1       |
| CG8615  | 308 | 6 | Ribosomal protein L18                          |
| CG8036  | 307 | 5 | CG8036   |
| CG2168  | 305 | 7 | Ribosomal protein S3A                          |
| CG4199  | 301 | 5 | CG4199   |
| CG1363  | 301 | 4 | Jupiter  |
| CG9244  | 296 | 4 | Aconitase                                      |
| CG17291 | 296 | 5 | Protein phosphatase 2A at 29B                  |
| CG5513  | 295 | 3 | endosulfine                                    |
| CG1422  | 294 | 5 | p115   |
| CG7808  | 291 | 5 | Ribosomal protein S8                           |
| CG1633  | 291 | 5 | thioredoxin peroxidase 1                       |
| CG8805  | 288 | 5 | eIF3-S10                                       |
| CG5366  | 285 | 4 | Cullin-associated and neddylation-associated 1 |
| CG4878  | 278 | 7 | eIF3-S9  |
| CG82549 | 278 | 5 | CG82549  |
| CG5374  | 276 | 4 | Tcp1-like                                      |
| CG1516  | 276 | 5 | Pyruvate carboxylase                           |
| CG6661  | 272 | 5 | Ribosomal protein L23                          |
| CG2098  | 271 | 6 | Ferrochelatase                                 |
| CG2241  | 270 | 5 | Regulatory particle triple-A ATPase 6-related  |
| CG2098  | 270 | 5 | Ferrochelatase                                 |
| CG751   | 267 | 5 | Ribosomal protein S4                           |
| CG8036  | 266 | 4 | CG8036   |
| CG12775 | 260 | 5 | Ribosomal protein L21                          |
| CG8900  | 258 | 6 | Ribosomal protein S18                          |
| CG17420 | 257 | 4 | Ribosomal protein L15                          |
| CG922   | 255 | 4 | Ribosomal protein S17                          |
| CG1883  | 254 | 3 | Ribosomal protein S7                           |
| CG6253  | 253 | 3 | Ribosomal protein L14                          |
| CG124   | 253 | 4 | Eukaryotic initiation factor3 p40 subunit      |
| CG1263  | 249 | 3 | Ribosomal protein L8                           |
| CG4747  | 240 | 6 | CG4747   |
| CG6235  | 239 | 3 | twins  |
| CG8877  | 235 | 4 | pre-mRNA processing factor 8                   |
| CG6831  | 234 | 4 | rhea   |
| CG5222  | 233 | 4 | GTP-binding protein                            |
| CG17246 | 233 | 3 | Succinyl coenzyme A synthetase                 |
| CG42668 | 232 | 6 | flavoprotein subunit                           |
| CG1196  | 231 | 6 | CG42668<br>14-3-3                              |

|         |     |    |   |
|---------|-----|----|---|
| CG5289  | 218 | 4  | Regulatory particle triple-A ATPase 2                           |
| CG11198 | 212 | 3  | Acetyl-CoA carboxylase  |
| CG2922  | 210 | 4  | krasavietz  |
| CG1483  | 209 | 4  | Microtubule-associated protein 205                              |
| CG7935  | 209 | 4  | mole skin   |
| CG2621  | 207 | 4  | shaggy  |
| CG8893  | 206 | 2  | Glycerol dehydrogenase 2  |
| CG15784 | 205 | 4  | CG15784   |
| CG9282  | 205 | 3  | Ribosomal protein L24   |
| CG9705  | 203 | 4  | CG9705  |
| CG8857  | 199 | 4  | Ribosomal protein S11   |
| CG14792 | 198 | 3  | stübarista  |
| CG8332  | 198 | 1  | Ribosomal protein S15   |
| CG42668 | 198 | 4  | CG42668   |
| CG8542  | 196 | 4  | Heat shock protein cognate 5                                    |
| CG2168  | 196 | 5  | Ribosomal protein S3A   |
| CG6084  | 196 | 3  | CG6084  |
| CG6510  | 195 | 5  | Ribosomal protein L18A  |
| CG4747  | 194 | 5  | CG4747  |
| CG32549 | 194 | 3  | CG32549   |
| CG4651  | 193 | 4  | Ribosomal protein L13   |
| CG10652 | 193 | 2  | Ribosomal protein L30   |
| CG13343 | 193 | 18 | Ubiquitin activating enzyme 3                                   |
| CG14207 | 191 | 1  | CG14207   |
| CG7897  | 190 | 4  | Gp210 ortholog (H. sapiens)                                     |
| CG3523  | 189 | 4  | Fatty acid synthase 1   |
| CG5934  | 189 | 3  | CG5934  |
| CG10691 | 188 | 2  | lethal (2)37Cc  |
| CG3107  | 188 | 5  | CG3107  |
| CG31764 | 188 | 5  | virus-induced RNA 1   |
| CG6143  | 187 | 3  | Protein on ecysone puffs  |
| CG1403  | 187 | 4  | Septin 1  |
| CG9677  | 184 | 4  | Int6 homolog  |
| CG1548  | 184 | 2  | catHd   |
| CG2050  | 182 | 3  | modulo  |
| CG8322  | 181 | 5  | ATP citrate lyase   |
| CG8857  | 180 | 3  | Ribosomal protein S11   |
| CG4994  | 179 | 2  | Mitochondrial phosphate carrier protein                         |
| CG1345  | 179 | 4  | Glutamine: fructose-6-phosphate aminotransferase 2              |
| CG1524  | 178 | 4  | Ribosomal protein S14a  |
| CG8415  | 177 | 3  | Ribosomal protein S23   |
| CG17737 | 177 | 3  | CG17737   |
| CG3186  | 176 | 2  | eIF-5A  |
| CG6838  | 176 | 3  | ADP-ribosylation factor GTPase activating protein 3             |
| CG2637  | 172 | 4  | Female sterile(2) Kde1  |
| CG1782  | 170 | 3  | Ubiquitin activating enzyme 1                                   |
| CG9273  | 169 | 1  | Replication protein A2  |
| CG6439  | 169 | 4  | CG6439  |
| CG10504 | 168 | 3  | Integrin linked kinase  |
| CG7507  | 167 | 5  | Dynein heavy chain 64C  |
| CG6988  | 167 | 2  | Protein disulfide isomerase                                     |
| CG8705  | 166 | 4  | peanut  |
| CG15717 | 164 | 4  | CG15717   |
| CG10377 | 163 | 2  | Heterogeneous nuclear ribonucleoprotein at 27C                  |
| CG15433 | 163 | 3  | Elongator complex protein 3                                     |
| CG3320  | 162 | 3  | Rab1  |
| CG10223 | 160 | 3  | Topoisomerase 2   |
| CG4659  | 159 | 3  | Signal recognition particle protein 54k                         |
| CG11963 | 159 | 3  | skpA associated protein   |
| CG15524 | 159 | 4  | Spindle assembly abnormal 6 ortholog (C. elegans)               |
| CG34407 | 159 | 2  | Not1  |
| CG1092  | 154 | 2  | CG1092  |
| CG3395  | 153 | 4  | Ribosomal protein S9  |
| CG9160  | 153 | 3  | mitochondrial acyl carrier protein 1                            |
| CG5838  | 152 | 4  | DNA replication-related element factor                          |
| CG7483  | 152 | 2  | eIF4AIII  |
| CG14999 | 151 | 2  | Replication factor-C40kD subunit                                |
| CG6501  | 151 | 1  | Nucleosome ortholog (H. sapiens) 2                              |
| CG1943  | 151 | 2  | CG1943  |
| CG3731  | 151 | 1  | Ubiquinol-cytochrome c reductase core protein 1                 |
| CG7831  | 149 | 4  | non-claret disjunctional  |
| CG11444 | 148 | 1  | CG11444   |
| CG2033  | 146 | 4  | Ribosomal protein S15Aa   |
| CG7471  | 146 | 4  | Rpd3  |
| CG12101 | 145 | 3  | Heat shock protein 60   |
| CG31289 | 145 | 2  | Diphthamide methyltransferase                                   |
| CG10691 | 144 | 1  | lethal (2)37Cc  |
| CG33162 | 144 | 2  | Signal recognition particle receptor                            |
| CG4257  | 143 | 3  | Signal transducer and activator of transcription protein at 92E |

|         |     |   |  |
|---------|-----|---|--|
| CG8175  | 142 | 1 | kugelkern  |
| CG13388 | 141 | 1 | A kinase anchoring protein 200                               |
| CG9983  | 140 | 3 | Heterogeneous nuclear ribonucleoprotein at 98DE              |
| CG10370 | 140 | 3 | Regulatory particle triple-A ATPase 5                        |
| CG7581  | 138 | 5 | Bub3   |
| CG7224  | 138 | 1 | Starvation-upregulated protein                               |
| CG12749 | 136 | 2 | Heterogeneous nuclear ribonucleoprotein at 87F               |
| CG81012 | 136 | 2 | CIN85 and CD2AP orthologue                                   |
| CG8529  | 136 | 3 | CG3529   |
| CG1683  | 135 | 3 | Adenine nucleotide translocase 2                             |
| CG1363  | 134 | 2 | Jupiter  |
| CG4046  | 133 | 3 | Ribosomal protein S16  |
| CG13849 | 133 | 3 | Nop56  |
| CG2061  | 131 | 2 | CG2061   |
| CG8309  | 131 | 3 | Transport and Golgi organization 7                           |
| CG11779 | 131 | 4 | CG11779  |
| CG11154 | 130 | 3 | ATP synthase, subunit  |
| CG4457  | 130 | 2 | Signal recognition particle protein 19                       |
| CG6189  | 129 | 2 | lethal (1)1Bi  |
| CG1059  | 129 | 2 | Karyopherin 3  |
| CG8800  | 128 | 2 | CG3800   |
| CG81617 | 128 | 4 | Hsl:CG31617  |
| CG42668 | 128 | 4 | CG42668  |
| CG1691  | 128 | 4 | IGF-II mRNA-binding protein                                  |
| CG7843  | 127 | 4 | Ars2   |
| CG6084  | 127 | 2 | CG6084   |
| CG8552  | 125 | 3 | Phosphatidic Acid Phosphatase A1                             |
| CG762   | 125 | 4 | Vacuolar H+ ATPase 68 kDa subunit 2                          |
| CG17654 | 123 | 2 | Enolase  |
| CG81137 | 123 | 2 | twin   |
| CG4799  | 122 | 2 | Pendulin   |
| CG11567 | 122 | 2 | Cytochrome P450 reductase                                    |
| CG9423  | 120 | 2 | karyopherin 3  |
| CG7726  | 119 | 2 | Ribosomal protein L11  |
| CG8024  | 119 | 1 | Torsin   |
| CG8532  | 118 | 3 | liquid facets  |
| CG10630 | 118 | 3 | blanks   |
| CG2746  | 117 | 2 | Ribosomal protein L19  |
| CG3644  | 116 | 2 | bicaudal   |
| CG17870 | 116 | 3 | 14-3-3   |
| CG8821  | 115 | 2 | Aspartyl-tRNA synthetase                                     |
| CG4001  | 115 | 1 | Phosphofructokinase  |
| CG1888  | 115 | 2 | Regulatory particle non-ATPase 2                             |
| CG4821  | 113 | 4 | Tequila  |
| CG8252  | 113 | 2 | Ranbp9   |
| CG7834  | 113 | 2 | CG7834   |
| CG80349 | 113 | 2 | CG30349  |
| CG3375  | 113 | 3 | pitchoine  |
| CG7033  | 112 | 2 | CG7033   |
| CG17611 | 111 | 1 | eIF6   |
| CG4169  | 111 | 3 | Ubiquinol-cytochrome c reductase core protein 2              |
| CG6846  | 111 | 2 | Ribosomal protein L26  |
| CG17489 | 111 | 3 | Ribosomal protein L5   |
| CG7490  | 110 | 3 | Ribosomal protein LP0  |
| CG4464  | 110 | 1 | Ribosomal protein S8a  |
| CG8732  | 110 | 2 | Acyl-CoA synthetase longchain                                |
| CG4620  | 109 | 1 | unke mpt   |
| CG15081 | 109 | 1 | Boh1 bit in 2  |
| CG1100  | 109 | 2 | Regulatory particle non-ATPase 5                             |
| CG6642  | 109 | 3 | CG5642   |
| CG3524  | 109 | 2 | v2jk05816  |
| CG11661 | 108 | 1 | Neural conserved at 73EF                                     |
| CG2064  | 108 | 2 | CG2064   |
| CG2803  | 108 | 3 | Troponin Cakin-1   |
| CG10824 | 108 | 3 | Common Lpr-interacting protein                               |
| CG8266  | 106 | 2 | Sec31 ortholog (S. cerevisiae)                               |
| CG16916 | 105 | 2 | Regulatory particle triple-A ATPase 3                        |
| CG13387 | 104 | 2 | embargoed  |
| CG8439  | 103 | 3 | T-complex Chaperonin 5                                       |
| CG8759  | 103 | 1 | Nascent polypeptide associated complex protein alpha subunit |
| CG9916  | 102 | 1 | Cyclophilin 1  |
| CG4555  | 102 | 2 | Regulatory particle triple-A ATPase 4                        |
| CG4729  | 102 | 1 | CG4729   |
| CG6815  | 102 | 2 | belphégor  |
| CG4145  | 100 | 2 | Collagen type IV   |
| CG9999  | 100 | 2 | Ran GTPase activating protein                                |
| CG7269  | 100 | 2 | Hdicase at 25E   |
| CG8215  | 100 | 1 | Zn72D  |
| CG6050  | 100 | 1 | Elongation factor Tu mitochondrial                           |
| CG1127  | 99  | 2 | Phosphoglycerate kinase                                      |
| CG429   | 98  | 2 | RNA-binding protein 2  |
| CG4954  | 98  | 2 | eIF3-S8  |

|         |    |   |  |
|---------|----|---|--|
| CG7113  | 97 | 1 | scully   |
| CG9543  | 96 | 2 | Coat Protein (coatmer)                                     |
| CG4069  | 96 | 1 | CG4069   |
| CG8507  | 96 | 2 | CG8507   |
| CG31694 | 96 | 1 | CG31694  |
| CG4738  | 96 | 2 | Nucleoporin160kD   |
| CG5848  | 95 | 1 | cactus   |
| CG18174 | 95 | 2 | Regulatory particle non-ATPase 11                          |
| CG1837  | 93 | 2 | pretaporter  |
| CG7461  | 93 | 3 | CG7461   |
| CG6226  | 92 | 3 | FK506-binding protein 1                                    |
| CG17060 | 92 | 1 | Rab10  |
| CG10302 | 92 | 2 | bicoid stability factor                                    |
| CG7434  | 91 | 1 | Ribosomal protein L22                                      |
| CG6782  | 91 | 2 | scheugia   |
| CG6382  | 90 | 3 | Ef1 -like factor   |
| CG17521 | 90 | 3 | Ribosomal protein L10                                      |
| CG15609 | 89 | 2 | Eps15 homology domain containing protein-binding protein 1 |
| CG8430  | 88 | 2 | Glutamate oxaloacetate transaminase 1                      |
| CG4993  | 88 | 2 | PRL-1  |
| CG6904  | 88 | 1 | Glycogen synthase  |

|         |    |   |  |
|---------|----|---|--|
| CG4821  | 87 | 2 | Tequila  |
| CG7144  | 87 | 1 | lysine ketoglutarate reductase                     |
| CG12085 | 87 | 2 | poly U binding factor 68kD                         |
| CG11107 | 87 | 1 | DIR15 ortholog                                     |
| CG10161 | 87 | 2 | Eukaryotic initiation factor3 p66 subunit          |
| CG8975  | 86 | 1 | Ribonucleoside diphosphate reductase small subunit |
| CG2691  | 86 | 2 | CG2691   |
| CG7404  | 86 | 2 | estrogen-related receptor                          |
| CG7878  | 86 | 2 | CG7878   |
| CG8417  | 86 | 1 | Signal recognition particle protein 14             |
| CG15792 | 85 | 2 | zipper   |
| CG6664  | 85 | 1 | Rab5   |
| CG6203  | 85 | 1 | Fmr1   |
| CG8890  | 85 | 1 | GDP-mannose 4,6-dehydratase                        |
| CG9373  | 85 | 1 | rumpelstiltskin                                    |
| CG4254  | 84 | 1 | twinstar   |
| CG6692  | 84 | 2 | Cysteine proteinase-1                              |
| CG9738  | 84 | 2 | MAP kinase kinase4                                 |
| CG9246  | 84 | 2 | CG9246   |
| CG7920  | 84 | 2 | CG7920   |

**table S2C. pUb-GFP-GORAB purification from OA-treated *Drosophila* cell extracts**

| CG #    | Score | #pep | Full name   |
|---------|-------|------|---|
| CG33052 | 61897 | 766  | CG33052   |
| CG4264  | 4605  | 65   | Heat shock protein cognate 4                      |
| CG7583  | 3502  | 47   | C-terminal Binding Protein                        |
| CG9277  | 3400  | 47   | -Tubulin at 56D                                   |
| CG7583  | 3329  | 45   | C-terminal Binding Protein                        |
| CG9277  | 3183  | 44   | -Tubulin at 56D                                   |
| CG4027  | 2995  | 47   | Actin 5C  |
| CG12051 | 2930  | 46   | Actin 42A   |
| CG4147  | 2726  | 42   | Heat shock 70-kDa protein cognate 3               |
| CG1913  | 2613  | 41   | -Tubulin at 84B                                   |
| CG10067 | 2227  | 34   | Actin 57B   |
| CG8280  | 2070  | 34   | Elongation factor 1 48D                           |
| CG7478  | 2042  | 30   | Actin 79B   |
| CG5178  | 1970  | 31   | Actin 88F   |
| CG15524 | 1961  | 37   | Spindle assembly abnormal 6 ortholog (C. elegans) |
| CG9476  | 1738  | 27   | -Tubulin at 85E                                   |
| CG3401  | 1565  | 26   | -Tubulin at 60D                                   |
| CG9359  | 1478  | 26   | -Tubulin at 85D                                   |
| CG8937  | 1259  | 13   | Heat shock protein cognate 1                      |
| CG1528  | 1171  | 22   | Coat Protein (coatmer)                            |
| CG9748  | 1115  | 16   | bellet  |
| CG15792 | 1096  | 20   | zipper  |
| CG17949 | 1077  | 17   | His2B:CG17949                                     |
| CG4869  | 1072  | 21   | -Tubulin at 97EF                                  |
| CG8937  | 1070  | 10   | Heat shock protein cognate 1                      |
| CG6871  | 900   | 11   | Catalase  |
| CG1349  | 874   | 14   | dj-1  |
| CG5436  | 868   | 10   | Heat shock protein 68                             |
| CG18743 | 852   | 9    | Heat-shock-protein-70Ab                           |
| CG15792 | 849   | 18   | zipper  |
| CG12065 | 812   | 15   | CG12065   |
| CG2216  | 811   | 16   | Ferritin 1 heavy chain homologue                  |
| CG6718  | 738   | 7    | calcium-independent phospholipase A2 VIA          |
| CG2238  | 728   | 13   | Elongation factor 2                               |
| CG1873  | 724   | 12   | Elongation factor 1 100E                          |
| CG7439  | 700   | 11   | Argonaute 2                                       |
| CG3752  | 685   | 4    | Aldehyde dehydrogenase                            |
| CG3379  | 672   | 15   | Histone H4 replacement                            |
| CG32626 | 659   | 15   | AMP deaminase                                     |
| CG33869 | 659   | 14   | His4:CG33869                                      |
| CG5261  | 655   | 14   | midline uncoordinated                             |
| CG5502  | 645   | 12   | Ribosomal protein L4                              |
| CG31613 | 637   | 11   | His3:CG31613                                      |
| CG12065 | 619   | 13   | CG12065   |
| CG10701 | 616   | 14   | Moesin  |
| CG7961  | 606   | 13   | Coat Protein (coatmer)                            |
| CG7756  | 604   | 7    | Heat shock protein cognate 2                      |
| CG6223  | 582   | 9    | Coat Protein (coatmer)                            |
| CG5825  | 572   | 10   | Histone H3.3A                                     |
| CG10701 | 542   | 12   | Moesin  |
| CG1250  | 532   | 6    | sec23   |
| CG10279 | 497   | 8    | Rm62  |
| CG5261  | 497   | 11   | midline uncoordinated                             |
| CG31618 | 486   | 10   | His2A:CG31618                                     |
| CG8309  | 461   | 7    | Transport and Golgi organization 7                |
| CG2216  | 453   | 10   | Ferritin 1 heavy chain homologue                  |

|         |     |   |  |
|---------|-----|---|--|
| CG5371  | 451 | 8 | Ribonucleoside diphosphate reductase large subunit |
| CG2151  | 444 | 5 | Thioredoxin reductase-1                            |
| CG1548  | 441 | 5 | catD   |
| CG18212 | 435 | 6 | aluminum tubes                                     |
| CG14648 | 403 | 7 | lost   |
| CG9888  | 402 | 9 | Fibrillarin  |
| CG8542  | 395 | 5 | Heat shock protein cognate 5                       |
| CG12163 | 368 | 5 | CG12163  |
| CG4897  | 367 | 5 | Ribosomal protein L7                               |
| CG10944 | 364 | 5 | Ribosomal protein S6                               |
| CG8322  | 355 | 5 | ATP citrate lyase                                  |
| CG4799  | 338 | 4 | Pendulin   |
| CG3612  | 328 | 7 | belwether  |
| CG4863  | 327 | 5 | Ribosomal protein L3                               |
| CG10630 | 327 | 6 | blanks   |
| CG1403  | 322 | 3 | Septin 1   |
| CG6253  | 307 | 4 | Ribosomal protein L14                              |
| CG8922  | 304 | 4 | Ribosomal protein S5a                              |
| CG2331  | 299 | 6 | TER94  |
| CG4634  | 283 | 3 | Nucleosome remodeling factor - 38kD                |
| CG4389  | 283 | 7 | Mitochondrial tri functional protein subunit       |
| CG3365  | 273 | 6 | Eb1  |
| CG1489  | 272 | 4 | Regulatory particle triple-A ATPase 6              |
| CG5920  | 271 | 5 | Ribosomal protein S2                               |
| CG1973  | 269 | 4 | yata   |
| CG8893  | 267 | 3 | Glyceraldehyde 3 phosphate dehydrogenase 2         |
| CG12233 | 255 | 4 | lethal (1) G0156                                   |
| CG2080  | 253 | 5 | modulo   |
| CG3201  | 250 | 4 | Myosin light chain cytoplasmic                     |
| CG8983  | 247 | 5 | ERp60  |
| CG4199  | 244 | 5 | CG4199   |
| CG2922  | 242 | 5 | extra bases  |
| CG6310  | 240 | 5 | Ribosomal protein L18A                             |
| CG11276 | 239 | 4 | Ribosomal protein S4                               |
| CG7808  | 239 | 3 | Ribosomal protein S8                               |
| CG3455  | 231 | 4 | Regulatory particle triple-A ATPase 4              |
| CG1100  | 231 | 4 | Regulatory particle non-ATPase 5                   |
| CG31363 | 229 | 4 | Jupiter  |
| CG7480  | 227 | 3 | CG7480   |
| CG4863  | 225 | 3 | Ribosomal protein L3                               |
| CG8996  | 222 | 3 | walrus   |
| CG2168  | 222 | 6 | Ribosomal protein S3A                              |
| CG17246 | 216 | 3 | Succinate dehydrogenase A                          |
| CG1341  | 215 | 4 | Regulatory particle triple-A ATPase 1              |
| CG7977  | 213 | 3 | Ribosomal protein L23A                             |
| CG33206 | 213 | 3 | Golgi microtubule-associated protein               |
| CG6099  | 212 | 3 | Coat Protein (coatmer)                             |
| CG3523  | 212 | 4 | Fatty acid synthase 1                              |
| CG5553  | 209 | 3 | Threonyl-tRNA synthetase                           |
| CG3661  | 208 | 3 | Ribosomal protein L23                              |
| CG5520  | 207 | 4 | Glycoprotein 93                                    |
| CG5000  | 206 | 3 | mini spindles                                      |
| CG17420 | 206 | 3 | Ribosomal protein L15                              |
| CG15442 | 206 | 3 | Ribosomal protein L27A                             |
| CG3024  | 205 | 3 | Torsin   |
| CG2746  | 204 | 2 | Ribosomal protein L19                              |



|         |     |    |  |
|---------|-----|----|--|
| CG3644  | 195 | 3  | bic audl   |
| CG5499  | 192 | 5  | Histone H2A variant  |
| CG6819  | 191 | 3  | me mbersonly   |
| CG1782  | 190 | 3  | Ubiquitin activating enzyme 1                                  |
| CG16944 | 189 | 5  | stress-sensitive B   |
| CG13349 | 189 | 2  | Regulatory particle non-ATPase 13                              |
| CG1404  | 187 | 3  | Ran  |
| CG16916 | 187 | 2  | Regulatory particle triple-A ATPase 3                          |
| CG6235  | 186 | 3  | twins  |
| CG10377 | 184 | 2  | Heterogeneous nuclear ribonucleoprotein at 27C                 |
| CG10990 | 184 | 3  | Programmed cell death 4 ortholog                               |
| CG11888 | 181 | 3  | Regulatory particle non-ATPase 2                               |
| CG8590  | 180 | 1  | Kinesin-like protein at 3A                                     |
| CG6831  | 180 | 2  | rhea   |
| CG31764 | 179 | 4  | virus-induced RNA 1  |
| CG6988  | 178 | 3  | Protein disulfide isomerase                                    |
| CG6084  | 178 | 3  | CG6084   |
| CG10161 | 176 | 3  | Eukaryotic initiation factor 3 p66 subunit                     |
| CG9075  | 174 | 4  | Eukaryotic initiation factor 4a                                |
| CG4347  | 173 | 2  | UGP  |
| CG5215  | 171 | 2  | Zn7D   |
| CG10206 | 171 | 3  | nop5   |
| CG1475  | 170 | 3  | Ribosomal protein L13A   |
| CG11856 | 170 | 3  | Nucleoporin358kD   |
| CG6543  | 169 | 3  | CG6543   |
| CG3314  | 167 | 3  | Ribosomal protein L7A  |
| CG17333 | 167 | 2  | CG17333  |
| CG8351  | 167 | 2  | Tcp-1  |
| CG11154 | 165 | 3  | ATP synthase, subunit  |
| CG42670 | 165 | 3  | pasilla  |
| CG13343 | 165 | 15 | Ubiquitin activating enzyme 3                                  |
| CG12389 | 164 | 1  | Farnesyl pyrophosphate synthase                                |
| CG15784 | 163 | 3  | CG15784  |
| CG32549 | 163 | 2  | CG32549  |
| CG6988  | 162 | 2  | Protein disulfide isomerase                                    |
| CG4581  | 158 | 3  | Thiolase   |
| CG5654  | 154 | 1  | ypsilon schachtel  |
| CG5374  | 153 | 2  | Tcp1-like  |
| CG7490  | 152 | 2  | Ribosomal protein LP0  |
| CG9412  | 152 | 3  | rasputin   |
| CG6439  | 152 | 4  | CG6439   |
| CG10811 | 151 | 2  | eukaryotic translation initiation factor 4G                    |
| CG8877  | 151 | 1  | pre-mRNA processing factor 8                                   |
| CG7111  | 150 | 3  | Receptor of activated protein kinase C 1                       |
| CG9983  | 149 | 2  | Heterogeneous nuclear ribonucleoprotein at 98DE                |
| CG8900  | 148 | 3  | Ribosomal protein S18  |
| CG4651  | 148 | 3  | Ribosomal protein L13  |
| CG1472  | 147 | 3  | Sac24AB ortholog (H. sapiens)                                  |
| CG9805  | 147 | 4  | eIF3-S10   |
| CG4916  | 144 | 3  | maternal expression at 31B                                     |
| CG8975  | 144 | 2  | Ribonucleoside diphosphate reductase small subunit             |
| CG2522  | 143 | 2  | GTP-binding protein  |
| CG11943 | 143 | 2  | Nucleoporin205kD   |
| CG10535 | 142 | 1  | Elongation complex protein 1                                   |
| CG7831  | 141 | 1  | non-claret disjunctional                                       |
| CG10305 | 138 | 3  | Ribosomal protein S26  |
| CG18190 | 138 | 2  | CG18190  |
| CG2098  | 136 | 3  | Ferrocyclase   |
| CG13389 | 133 | 2  | Ribosomal protein S13  |
| CG10882 | 133 | 3  | stenosis   |
| CG5825  | 130 | 6  | Histone H3.3A  |
| CG6084  | 130 | 2  | CG6084   |
| CG4800  | 130 | 2  | Translationally controlled tumor protein ortholog (H. sapiens) |
| CG7507  | 130 | 3  | Dynein heavy chain 64C   |
| CG8439  | 129 | 2  | T-complex Clapronin 5  |
| CG10223 | 127 | 3  | Topoisomerase 2  |
| CG31363 | 126 | 2  | Jupiter  |
| CG14206 | 126 | 2  | Ribosomal protein S10b   |
| CG10691 | 125 | 1  | lethal (2)37Cc   |
| CG12532 | 125 | 3  | Adaptor Protein complex 1/2, subunit                           |
| CG7185  | 123 | 1  | CG7185   |
| CG13849 | 123 | 2  | Nop56  |
| CG6815  | 121 | 2  | bel pregor   |
| CG2168  | 120 | 4  | Ribosomal protein S3A  |
| CG30176 | 120 | 2  | within hgn   |
| CG1483  | 119 | 1  | Microrna-associated protein 205                                |
| CG4169  | 119 | 2  | Ubiquinol-cytochrome c reductase core protein 2                |
| CG3902  | 116 | 1  | CG3902   |
| CG3606  | 115 | 2  | cabaza   |
| CG8266  | 115 | 2  | Sac31 ortholog (S. cerevisiae)                                 |
| CG10922 | 113 | 2  | La autoantigen-like  |
| CG9124  | 111 | 3  | Eukaryotic initiation factor 3 p40 subunit                     |

|         |     |   |   |
|---------|-----|---|---|
| CG10160 | 110 | 2 | Ec dysone-inducible gene L3                                     |
| CG13387 | 110 | 2 | embargoed   |
| CG9012  | 108 | 3 | Clathrin heavy chain  |
| CG7398  | 108 | 2 | Transportin   |
| CG11793 | 107 | 1 | Superoxide dismutase  |
| CG3107  | 107 | 2 | CG3107  |
| CG4584  | 107 | 2 | Deoxyuridine triphosphatase                                     |
| CG1242  | 106 | 2 | Heat shock protein 83   |
| CG8073  | 106 | 3 | Phosphomannomutase 45A  |
| CG8571  | 105 | 2 | small minded  |
| CG4236  | 105 | 1 | Chromatin assembly factor 1 subunit                             |
| CG4259  | 104 | 1 | CG4259  |
| CG1453  | 103 | 2 | Kinesin-like protein at 10A                                     |
| CG10230 | 101 | 2 | Regulatory particle non-ATPase 9                                |
| CG8615  | 101 | 2 | Ribosomal protein L18   |
| CG8798  | 101 | 2 | Lon protease  |
| CG18102 | 100 | 1 | shibire   |
| CG6692  | 100 | 1 | Cysteine proteinase-1   |
| CG8857  | 99  | 1 | Ribosomal protein S11   |
| CG7766  | 98  | 1 | CG7766  |
| CG8831  | 97  | 2 | Nucleoporin 54kD  |
| CG4878  | 97  | 3 | eIF3-S9   |
| CG6513  | 97  | 1 | endosulfine   |
| CG7726  | 96  | 1 | Ribosomal protein L11   |
| CG6617  | 96  | 1 | CG6617  |
| CG17654 | 95  | 1 | Enolase   |
| CG3351  | 95  | 4 | mitochondrial ribosomal protein L11                             |
| CG9999  | 94  | 2 | Ran GTPase activating protein                                   |
| CG1633  | 94  | 1 | thioredoxin peroxidase 1  |
| CG2083  | 93  | 3 | Ribosomal protein S15Aa   |
| CG5170  | 93  | 3 | Dodeca-satellite-binding protein 1                              |
| CG1683  | 92  | 2 | Adenine nucleotide translocase 2                                |
| CG9543  | 92  | 2 | Coat Protein (coatamer)   |
| CG1129  | 92  | 1 | CG1129  |
| CG2918  | 91  | 1 | CG2918  |
| CG6180  | 91  | 1 | CG6180  |
| CG4463  | 90  | 1 | Heat shock protein 23   |
| CG7677  | 90  | 2 | CG7677  |
| CG11522 | 90  | 1 | Ribosomal protein L6  |
| CG4003  | 90  | 1 | pontin  |
| CG10652 | 89  | 1 | Ribosomal protein L30   |
| CG4398  | 89  | 2 | CG4398  |
| CG4257  | 88  | 3 | Signal-transducer and activator of transcription protein at 92E |
| CG8553  | 88  | 1 | selenide water dikinase   |
| CG12775 | 88  | 2 | Ribosomal protein L21   |
| CG9916  | 87  | 1 | Cyclophilin 1   |
| CG33162 | 87  | 1 | Signal recognition particle receptor                            |
| CG3320  | 86  | 1 | Rab1  |
| CG6050  | 86  | 1 | Elongation factor Tu mitochondrial                              |
| CG5175  | 86  | 1 | kugelkern   |
| CG34407 | 86  | 1 | Not1  |
| CG3333  | 86  | 1 | Nuclear protein at 60B  |
| CG3152  | 85  | 2 | Trap1   |
| CG10370 | 85  | 2 | Regulatory particle triple-A ATPase 5                           |
| CG4054  | 85  | 1 | eIF3-S8   |
| CG3395  | 84  | 2 | Ribosomal protein S9  |
| CG8882  | 84  | 1 | Tripl   |
| CG7340  | 83  | 1 | granny smith  |
| CG5394  | 82  | 1 | Glutamyl-prolyl-tRNA synthetase                                 |
| CG12324 | 82  | 2 | Ribosomal protein S15Ab   |
| CG10077 | 82  | 2 | CG10077   |
| CG31196 | 81  | 1 | 14-3-3  |
| CG2061  | 81  | 1 | CG2061  |
| CG5446  | 81  | 1 | CG5446  |
| CG2098  | 80  | 2 | Ferrocyclase  |
| CG2098  | 80  | 1 | Ferrocyclase  |
| CG1253  | 79  | 1 | Ribosomal protein L8  |
| CG12275 | 79  | 1 | Ribosomal protein S10a  |
| CG5366  | 79  | 1 | Cullin-associated and neddylation-dissociated 1                 |
| CG9493  | 79  | 1 | Pez   |
| CG8552  | 79  | 1 | Phosphatidic Acid Phosphatase A1                                |
| CG9373  | 78  | 1 | rumpelstiltskin   |
| CG3393  | 77  | 2 | rudimentary-like  |
| CG1837  | 77  | 2 | preceptor   |
| CG12013 | 77  | 1 | PHGFx   |
| CG7083  | 76  | 1 | CG7033  |
| CG5054  | 76  | 1 | Signal recognition particle protein 68                          |
| CG11579 | 75  | 1 | armadillo   |
| CG9680  | 75  | 1 | Dead box protein 73D  |
| CG9282  | 75  | 1 | Ribosomal protein L24   |
| CG7097  | 74  | 1 | Cleavage stimulation factor 64kDa subunit                       |
| CG10504 | 74  | 1 | Integrin linked kinase  |
| CG2331  | 73  | 1 | TER94   |
| CG4111  | 73  | 1 | Ribosomal protein L35   |

|         |    |   |                                     |
|---------|----|---|-------------------------------------|
| CG5389  | 73 | 1 | male sterile (3) 72Dt               |
| CG33456 | 73 | 4 | muscle wasted                       |
| CG42668 | 73 | 1 | CG42668                             |
| CG8443  | 72 | 1 | clueless                            |
| CG5119  | 72 | 1 | polyA-binding protein               |
| CG7144  | 71 | 2 | lysine ketoglutarate reductase      |
| CG10198 | 71 | 1 | Nucleoporin98-96kD                  |
| CG11271 | 71 | 1 | Ribosomal protein S12               |
| CG2637  | 71 | 2 | Female sterile(2) Kex1              |
| CG7765  | 70 | 1 | Kinesin heavy chain                 |
| CG11661 | 70 | 2 | Neural conserved at 73EF            |
| CG4173  | 70 | 2 | Septin 2                            |
| CG4993  | 70 | 1 | PRL-1                               |
| CG9148  | 70 | 1 | supercoiling factor                 |
| CG1422  | 70 | 1 | p115                                |
| CG8705  | 69 | 1 | peanut                              |
| CG14996 | 69 | 2 | Chd64                               |
| CG6521  | 68 | 1 | Signal transducing adaptor molecule |
| CG10777 | 68 | 1 | mareshvara                          |
| CG2064  | 68 | 2 | CG2064                              |
| CG7392  | 68 | 1 | Connector of kinase to AP-1         |
| CG9273  | 67 | 1 | Replication protein A2              |
| CG11811 | 67 | 1 | CG11811                             |
| CG3949  | 66 | 1 | hoi-pd101                           |
| CG31012 | 66 | 1 | CIN85 and CD2AP orthologue          |
| CG10992 | 66 | 1 | Cathepsin B1                        |
| CG8890  | 66 | 1 | GDP-mannose 4,6-dehydratase         |
| CG2158  | 66 | 2 | Nucleoporin50kD                     |
| CG2803  | 66 | 1 | Troponin Cakn-1                     |
| CG8231  | 65 | 1 | T-cpl                               |
| CG1516  | 65 | 1 | Pyruvate carboxylase                |
| CG9088  | 65 | 1 | little image discs                  |

|         |    |   |   |
|---------|----|---|---|
| CG6779  | 64 | 1 | Ribosomal protein S8                          |
| CG7762  | 64 | 2 | Regulatory particle non-ATPase 1              |
| CG3714  | 64 | 2 | CG3714  |
| CG7626  | 64 | 1 | Spt5  |
| CG1943  | 63 | 1 | CG1943  |
| CG4817  | 62 | 1 | Structure specific recognition protein        |
| CG7985  | 62 | 1 | mole skin                                     |
| CG11198 | 62 | 2 | Acetyl-CoA carboxylase                        |
| CG8610  | 61 | 5 | Cell division cycle 27 ortholog               |
| CG12101 | 61 | 1 | Heat shock protein 60                         |
| CG4567  | 61 | 1 | ic onoclast                                   |
| CG1524  | 60 | 1 | Ribosomal protein S14a                        |
| CG3922  | 60 | 1 | Ribosomal protein S17                         |
| CG5289  | 60 | 2 | Regulatory particle triple-A ATPase 2         |
| CG1088  | 60 | 1 | Vacuolar H <sup>+</sup> -ATPase 26kD subunit  |
| CG14224 | 60 | 2 | Ubiquitin                                     |
| CG4046  | 60 | 2 | Ribosomal protein S16                         |
| CG33180 | 60 | 2 | Ranbp16                                       |
| CG3303  | 58 | 1 | Ribosomal protein L17                         |
| CG4679  | 58 | 1 | CG4679  |
| CG33129 | 58 | 2 | CG33129                                       |
| CG10641 | 57 | 1 | Swiprosin-1                                   |
| CG7989  | 56 | 1 | Ribosomal protein L32                         |
| CG5888  | 56 | 1 | DNA replication-related element factor        |
| CG10753 | 56 | 1 | Small ribonucleoprotein particle protein Smd1 |
| CG4538  | 56 | 1 | CG4538  |
| CG6907  | 55 | 1 | CG6907  |
| CG32533 | 55 | 2 | CG32533                                       |
| CG4183  | 54 | 1 | Heat shock protein 26                         |

**table S2D. pMT-GORAB-GFP purification from cultured *Drosophila* cells**

| CG #    | Size   | #pep | Full name                          |
|---------|--------|------|------------------------------------|
| CG15792 | 227633 | 701  | zipper                             |
| CG15792 | 237395 | 696  | zipper                             |
| CG15792 | 232241 | 696  | zipper                             |
| CG15792 | 228521 | 696  | zipper                             |
| CG15792 | 233676 | 696  | zipper                             |
| CG15792 | 227529 | 695  | zipper                             |
| CG33052 | 37855  | 253  | CG33052                            |
| CG4027  | 42194  | 173  | Actin 5C                           |
| CG12051 | 42196  | 172  | Actin 42A                          |
| CG10067 | 42207  | 157  | Actin 57B                          |
| CG7478  | 42159  | 126  | Actin 79B                          |
| CG5178  | 42072  | 129  | Actin 88F                          |
| CG1484  | 144959 | 40   | fligless I                         |
| CG9155  | 119657 | 44   | Myosin 61F                         |
| CG3201  | 16717  | 41   | Myosin light chain cytoplasmic     |
| CG4898  | 29336  | 42   | Tropomyosin 1                      |
| CG7438  | 117649 | 35   | Myosin 31DF                        |
| CG4898  | 29248  | 39   | Tropomyosin 1                      |
| CG4898  | 32537  | 37   | Tropomyosin 1                      |
| CG4898  | 32795  | 34   | Tropomyosin 1                      |
| CG8280  | 50561  | 25   | Elongation factor 1 48D            |
| CG4898  | 80290  | 32   | Tropomyosin 1                      |
| CG4898  | 53394  | 32   | Tropomyosin 1                      |
| CG4898  | 32783  | 32   | Tropomyosin 1                      |
| CG4898  | 32783  | 32   | Tropomyosin 1                      |
| CG4898  | 54666  | 32   | Tropomyosin 1                      |
| CG4898  | 32783  | 32   | Tropomyosin 1                      |
| CG4898  | 32783  | 32   | Tropomyosin 1                      |
| CG10540 | 32853  | 18   | capping protein alpha              |
| CG1913  | 50561  | 28   | -Tubulin at 84B                    |
| CG2146  | 138912 | 22   | dilute class unconventional myosin |
| CG4264  | 71372  | 17   | Heat shock protein cognate 4       |
| CG7595  | 251804 | 16   | crinkled                           |
| CG1539  | 41524  | 19   | tropomodulin                       |
| CG5825  | 15376  | 14   | Histone H3.3A                      |
| CG6450  | 316451 | 21   | lava lamp                          |
| CG5695  | 144349 | 20   | jaigar                             |
| CG7583  | 42738  | 22   | C-terminal Binding Protein         |
| CG9476  | 50619  | 19   | -Tubulin at 85E                    |
| CG4145  | 175391 | 13   | Collagen type IV                   |
| CG5502  | 45112  | 12   | Ribosomal protein L4               |
| CG12008 | 472720 | 9    | karst                              |
| CG16858 | 194685 | 14   | viking                             |
| CG3595  | 19999  | 16   | spaghetti squash                   |
| CG4897  | 29591  | 10   | Ribosomal protein L7               |
| CG5409  | 42459  | 11   | Actin-related protein 53D          |
| CG4898  | 48168  | 9    | Tropomyosin 1                      |
| CG4898  | 74950  | 9    | Tropomyosin 1                      |
| CG4898  | 48168  | 9    | Tropomyosin 1                      |
| CG4898  | 18518  | 9    | Tropomyosin 1                      |

|         |        |    |                                     |
|---------|--------|----|-------------------------------------|
| CG8937  | 70871  | 5  | Heat shock protein cognate 1        |
| CG8937  | 61480  | 5  | Heat shock protein cognate 1        |
| CG8937  | 61480  | 5  | Heat shock protein cognate 1        |
| CG18572 | 248796 | 3  | rudimentary                         |
| CG9277  | 51720  | 11 | -Tubulin at 56D                     |
| CG14792 | 30266  | 6  | stubarista                          |
| CG147   | 72330  | 11 | Heat shock 70-kDa protein cognate 3 |
| CG106   | 82648  | 12 | Gelsolin                            |
| CG1613  | 15436  | 11 | His3:CG31613                        |
| CG9277  | 42619  | 10 | -Tubulin at 56D                     |
| CG9277  | 42619  | 10 | -Tubulin at 56D                     |
| CG18212 | 95266  | 5  | aluminum tubes                      |
| CG8401  | 51387  | 7  | -Tubulin at 60D                     |
| CG1977  | 279101 | 5  | Spectrin                            |
| CG1883  | 22156  | 6  | Ribosomal protein S7                |
| CG8014  | 27470  | 5  | Receptor mediated endocytosis 8     |
| CG6699  | 103618 | 4  | Coat Protein (coatomer)             |
| CG1973  | 97727  | 6  | CG1973                              |
| CG82138 | 133702 | 4  | CG32138                             |
| CG9001  | 44959  | 2  | Actin-related protein 2             |
| CG8615  | 21822  | 6  | Ribosomal protein L18               |
| CG17158 | 31572  | 6  | capping protein beta                |
| CG8752  | 57325  | 3  | Aldehyde dehydrogenase              |
| CG9359  | 50408  | 8  | -Tubulin at 85D                     |
| CG7551  | 15095  | 7  | Ribosomal protein S24               |
| CG7765  | 110901 | 4  | Kinesin heavy chain                 |
| CG7558  | 47459  | 6  | Actin-related protein 66B           |
| CG8309  | 44515  | 3  | Transport and Golgi organization 7  |
| CG10160 | 35800  | 4  | Ecdysone-inducible gene L3          |
| CG10938 | 27094  | 1  | Proteasome 5 subunit                |
| CG15693 | 13593  | 4  | Ribosomal protein S20               |
| CG379   | 11374  | 8  | Histone H4 replacement              |
| CG8578  | 45489  | 6  | CG8578                              |
| CG6223  | 108308 | 4  | Coat Protein (coatomer)             |
| CG3869  | 11356  | 7  | His4:CG33869                        |
| CG3877  | 11356  | 7  | His4:CG33877                        |
| CG3879  | 11356  | 7  | His4:CG33879                        |
| CG3881  | 11356  | 7  | His4:CG33881                        |
| CG1873  | 51030  | 10 | Elongation factor 1 100E            |
| CG1873  | 51030  | 10 | Elongation factor 1 100E            |
| CG1873  | 51030  | 10 | Elongation factor 1 100E            |
| CG1873  | 51030  | 10 | Elongation factor 1 100E            |
| CG8436  | 70043  | 4  | Heat shock protein 68               |
| CG8922  | 25760  | 4  | Ribosomal protein S5a               |
| CG8825  | 13687  | 10 | Histone H3.3A                       |
| CG8831  | 308914 | 2  | rhea                                |
| CG7762  | 103010 | 1  | Regulatory particle non-ATPase 1    |
| CG10223 | 16034  | 5  | Topoisomerase 2                     |
| CG2168  | 30649  | 7  | Ribosomal protein S3A               |
| CG1618  | 13355  | 8  | His2A:CG31618                       |

|         |        |   |  |
|---------|--------|---|--|
| CG3455  | 45111  | 4 | Regulatory particle triple-A ATPase 4            |
| CG4863  | 47285  | 3 | Ribosomal protein L3                             |
| CG17489 | 34244  | 7 | Ribosomal protein L5                             |
| CG7111  | 36109  | 3 | Receptor of activated protein kinase C1          |
| CG1691  | 62376  | 2 | IGF-II mRNA binding protein                      |
| CG3937  | 240799 | 5 | cheerio  |
| CG6253  | 19219  | 3 | Ribosomal protein L14                            |
| CG15099 | 293740 | 3 | CG15099  |
| CG5920  | 29110  | 5 | Ribosomal protein S2                             |
| CG2168  | 18546  | 6 | Ribosomal protein S3A                            |
| CG4863  | 18295  | 2 | Ribosomal protein L3                             |
| CG4863  | 15772  | 2 | Ribosomal protein L3                             |
| CG9282  | 17623  | 4 | Ribosomal protein L24                            |
| CG12592 | 75824  | 1 | CG12592  |
| CG17420 | 24424  | 7 | Ribosomal protein L15                            |
| CG3203  | 21922  | 3 | Ribosomal protein L17                            |
| CG7507  | 532987 | 2 | Dynein heavy chain 64C                           |
| CG10652 | 12398  | 2 | Ribosomal protein L30                            |
| CG17333 | 26997  | 1 | CG17333  |
| CG5119  | 70110  | 3 | polyA-binding protein                            |
| CG7490  | 34295  | 3 | Ribosomal protein LP0                            |
| CG8439  | 59697  | 1 | T-c omplex Chaperonin 5                          |
| CG17949 | 13688  | 5 | His2B-CG17949                                    |
| CG11276 | 29230  | 6 | Ribosomal protein S4                             |
| CG9748  | 85371  | 4 | helle  |
| CG4466  | 23659  | 2 | Heat shock protein 27                            |
| CG10370 | 48005  | 3 | Regulatory particle triple-A ATPase 5            |
| CG18076 | 629346 | 2 | short stop                                       |
| CG7283  | 24429  | 3 | Ribosomal protein L10Ab                          |
| CG17611 | 26649  | 1 | elf6   |
| CG12052 | 76161  | 1 | longitudinal s lacking                           |
| CG3395  | 22610  | 7 | Ribosomal protein S9                             |
| CG5170  | 144929 | 2 | Dodeca-satellite-binding protein 1               |
| CG32626 | 82610  | 3 | AMP deaminase                                    |
| CG3922  | 15332  | 4 | Ribosomal protein S17                            |
| CG16916 | 47083  | 1 | Regulatory particle triple-A ATPase 3            |
| CG4869  | 59217  | 4 | -Tubulin at 97EF                                 |
| CG4869  | 51733  | 4 | -Tubulin at 97EF                                 |
| CG4759  | 15893  | 3 | Ribosomal protein L27                            |
| CG3314  | 30884  | 2 | Ribosomal protein L7A                            |
| CG5330  | 43026  | 1 | Nucleosome assembly protein 1                    |
| CG11522 | 27738  | 3 | Ribosomal protein L6                             |
| CG3416  | 38180  | 2 | Regulatory particle non-ATPase 8                 |
| CG7626  | 120226 | 1 | Spt5   |
| CG6779  | 27682  | 4 | Ribosomal protein S3                             |
| CG5289  | 49464  | 2 | Regulatory particle triple-A ATPase 2            |
| CG13388 | 88252  | 1 | A kinase anchor protein 200                      |
| CG5482  | 45005  | 1 | CG5482   |
| CG5000  | 227956 | 2 | mini spindles                                    |
| CG7756  | 70078  | 2 | Heat shock protein cognate 2                     |
| CG3299  | 107034 | 5 | Vinculin   |
| CG6846  | 17270  | 3 | Ribosomal protein L26                            |
| CG9325  | 128772 | 2 | hu li tai shao                                   |
| CG1569  | 242390 | 3 | rough deal                                       |
| CG1994  | 113659 | 1 | lethal (l) G0020                                 |
| CG1528  | 98470  | 3 | Coat Protein (coatome r)                         |
| CG2050  | 60387  | 3 | modulo   |
| CG17521 | 26024  | 2 | Ribosomal protein L10                            |
| CG14996 | 20859  | 2 | Chd64  |
| CG10377 | 44970  | 1 | Heterogeneous nuclear ribonucleoprotein at 27C   |
| CG9012  | 192937 | 2 | Clathrin heavy chain                             |
| CG8332  | 17026  | 2 | Ribosomal protein S15                            |
| CG17291 | 66067  | 3 | Protein phosphatase 2A at 29B                    |
| CG4651  | 25050  | 4 | Ribosomal protein L13                            |
| CG10305 | 13543  | 3 | Ribosomal protein S26                            |
| CG8705  | 60448  | 1 | peanut   |
| CG1115  | 24361  | 1 | CG1115   |
| CG7977  | 29445  | 2 | Ribosomal protein L23A                           |
| CG31794 | 66128  | 1 | Pavilion   |
| CG12030 | 39071  | 2 | UDP-galactose 4-epimerase                        |
| CG3164  | 79017  | 2 | CG3164   |
| CG4463  | 20730  | 1 | Heat shock protein 23                            |
| CG10811 | 184570 | 2 | eukaryotic translation initiation factor 4G      |
| CG15524 | 55135  | 2 | Spindle assembly abnormal 6 ortholog (C elegans) |
| CG2238  | 95424  | 4 | Elongation factor 2                              |
| CG4464  | 17394  | 3 | Ribosomal protein S19a                           |
| CG8715  | 135935 | 1 | lingere r  |
| CG3074  | 50124  | 1 | Secreted Wg interacting molecule                 |
| CG14206 | 17867  | 3 | Ribosomal protein S10b                           |
| CG12532 | 101914 | 1 | Adaptor Protein complex 1/2                      |

|         |        |   |   |
|---------|--------|---|---|
|         |        |   | subunit                                   |
| CG18076 | 624270 | 1 | short stop                                |
| CG18076 | 620997 | 1 | short stop                                |
| CG18076 | 590626 | 1 | short stop                                |
| CG18076 | 992421 | 1 | short stop                                |
| CG18076 | 623815 | 1 | short stop                                |
| CG18076 | 590733 | 1 | short stop                                |
| CG18076 | 620997 | 1 | short stop                                |
| CG18076 | 623898 | 1 | short stop                                |
| CG6684  | 13193  | 3 | Ribosomal protein S25                     |
| CG6661  | 13041  | 2 | Ribosomal protein L23                     |
| CG1559  | 131256 | 1 | Upf1                                      |
| CG18102 | 93371  | 1 | shibire                                   |
| CG1046  | 16878  | 2 | Ribosomal protein S16                     |
| CG8900  | 17658  | 2 | Ribosomal protein S18                     |
| CG1228  | 75518  | 1 | hippo                                     |
| CG6757  | 63584  | 1 | SH3PX1                                    |
| CG15697 | 14633  | 2 | Ribosomal protein S30                     |
| CG2621  | 59192  | 1 | shaggy                                    |
| CG5499  | 14972  | 5 | Histone H2A variant                       |
| CG4183  | 23208  | 1 | Heat shock protein 26                     |
| CG4289  | 30843  | 1 | Peroxin 14                                |
| CG8888  | 34673  | 2 | Fibrillarin                               |
| CG7961  | 140952 | 2 | Coat Protein (coatome r)                  |
| CG12512 | 65788  | 1 | CG12512                                   |
| CG6987  | 28447  | 2 | SF2                                       |
| CG6831  | 236962 | 1 | rhea                                      |
| CG6831  | 236962 | 1 | rhea                                      |
| CG1821  | 14881  | 4 | Ribosomal protein L31                     |
| CG3008  | 69634  | 1 | CG3008                                    |
| CG1888  | 113754 | 1 | Regulatory particle non-ATPase 2          |
| CG12775 | 18521  | 1 | Ribosomal protein L21                     |
| CG43063 | 15533  | 2 | CG43063                                   |
| CG143   | 78870  | 2 | Protein on ecdysone puffs                 |
| CG1104  | 87942  | 1 | CG1104                                    |
| CG1242  | 82099  | 2 | Heat shock protein 83                     |
| CG2699  | 57734  | 1 | Pi3K21B                                   |
| CG1527  | 257403 | 3 | Tiggrin                                   |
| CG13389 | 17168  | 2 | Ribosomal protein S13                     |
| CG7014  | 25985  | 1 | Ribosomal protein S5b                     |
| CG43119 | 178970 | 2 | Ec t o d e m - e x p r e s s e d 4        |
| CG10944 | 24795  | 1 | Ribosomal protein S6                      |
| CG1943  | 234806 | 1 | Nucleoporin 20kD                          |
| CG1489  | 45999  | 2 | Regulatory particle triple-A ATPase 6     |
| CG1471  | 141979 | 1 | Isoleucyl-tRNA synthetase                 |
| CG13387 | 123746 | 1 | em bargoed                                |
| CG6811  | 55220  | 1 | Rho GTPase activating protein at 68F      |
| CG6444  | 17727  | 1 | bicaudal                                  |
| CG6238  | 132323 | 1 | slingshot                                 |
| CG4648  | 59934  | 3 | growl                                     |
| CG42807 | 31558  | 1 | CG42807                                   |
| CG12306 | 67614  | 1 | polo                                      |
| CG7269  | 49077  | 2 | Helicase at 25E                           |
| CG10279 | 78956  | 1 | Rm 62                                     |
| CG4111  | 14498  | 2 | Ribosomal protein L35                     |
| CG6815  | 68489  | 2 | belphégor                                 |
| CG8195  | 17891  | 1 | Ribosomal protein L12                     |
| CG10535 | 143580 | 1 | Elongator complex protein 1               |
| CG2033  | 14933  | 2 | Ribosomal protein S15Aa                   |
| CG6522  | 91901  | 2 | Testin ortholog                           |
| CG17272 | 17239  | 1 | CG17272                                   |
| CG6439  | 40698  | 1 | CG6439                                    |
| CG12611 | 548180 | 1 | Megalin                                   |
| CG8571  | 105000 | 1 | small minded                              |
| CG8529  | 57852  | 1 | CG3529                                    |
| CG6199  | 82914  | 1 | procollagen lysyl hydroxylase             |
| CG8805  | 134425 | 1 | elf3-S10                                  |
| CG17489 | 15603  | 2 | Ribosomal protein L5                      |
| CG6944  | 71371  | 2 | Lamin                                     |
| CG8178  | 75045  | 1 | Recombination repair protein 1            |
| CG2998  | 7529   | 1 | Ribosomal protein S28b                    |
| CG82086 | 56258  | 3 | CG32086                                   |
| CG42668 | 70815  | 1 | CG42668                                   |
| CG1602  | 58673  | 1 | Srp54                                     |
| CG12324 | 14903  | 1 | Ribosomal protein S15Ab                   |
| CG14549 | 26223  | 3 | Sld5                                      |
| CG8587  | 33919  | 1 | CG3587                                    |
| CG12595 | 93624  | 1 | unextended                                |
| CG6143  | 11598  | 1 | Protein on ecdysone puffs                 |
| CG1399  | 69173  | 1 | Leucine-rich repeat                       |
| CG6476  | 72926  | 1 | Suppressor of variegation 3-9             |
| CG1945  | 314766 | 1 | fat facets                                |
| CG17766 | 170592 | 1 | Rabonnequin-3B                            |
| CG15899 | 35466  | 1 | Ca <sup>2+</sup> -channel protein subunit |
| CG16932 | 134507 | 1 | Epidermal growth factor receptor          |

|         |        |   |   |
|---------|--------|---|---|
|         |        |   | pathway substrate clone 15                        |
| CG12292 | 42714  | 1 | spiciflyin  |
| CG15100 | 113269 | 1 | Methionyl-tRNA synthetase                         |
| CG11981 | 23618  | 1 | Proteasome 3 subunit                              |
| CG1263  | 27989  | 1 | Ribosomal protein L8                              |
| CG10840 | 127638 | 2 | elF5B   |
| CG31012 | 57268  | 1 | CIN85 and CDAP orthologue                         |
| CG1059  | 125078 | 1 | Karyopherin 3                                     |
| CG10501 | 57555  | 4 | methyl dopa-resistant                             |
| CG1524  | 16312  | 1 | Ribosomal protein S14a                            |
| CG4079  | 22135  | 1 | TBP-associated factor 11                          |
| CG14804 | 52794  | 1 | Vacuolar protein sorting 26                       |
| CG3210  | 83085  | 1 | Dynamin related protein 1                         |
| CG15784 | 62634  | 1 | CG15784   |
| CG4217  | 29945  | 1 | mitochondrial transcription factor A              |
| CG5515  | 28702  | 1 | CG5515  |
| CG4918  | 11750  | 1 | Ribosomal protein LP2                             |
| CG1345  | 77403  | 1 | Glutamine:fructose-6-phosphate aminotransferase 2 |
| CG6976  | 245267 | 1 | Myosin 28B1                                       |
| CG6976  | 245258 | 1 | Myosin 28B1                                       |
| CG6976  | 120117 | 1 | Myosin 28B1                                       |
| CG6976  | 120126 | 1 | Myosin 28B1                                       |
| CG32075 | 62202  | 1 | CG32075   |
| CG8857  | 18262  | 1 | Ribosomal protein S11                             |
| CG6977  | 218051 | 1 | Cadherin 87A                                      |
| CG42318 | 83573  | 1 | approximate d                                     |
| CG12065 | 76897  | 1 | CG12065   |
| CG1810  | 75461  | 2 | mRNA-capping-enzyme                               |
| CG14224 | 58798  | 1 | Ubiquitin   |
| CG15398 | 35388  | 2 | CG15398   |
| CG5525  | 57764  | 1 | CG5525  |
| CG18467 | 28173  | 1 | CG18467   |
| CG2241  | 45255  | 1 | Regulatory particle triple-A ATPase 6-related     |
| CG8472  | 16800  | 1 | Calmodulin  |
| CG2746  | 24154  | 1 | Ribosomal protein L19                             |
| CG9281  | 70085  | 1 | CG9281  |
| CG1702  | 27130  | 1 | Glutathione S-transferase T3                      |
| CG12740 | 16019  | 1 | Ribosomal protein L28                             |
| CG1599  | 25211  | 1 | Vesicle-associated membrane protein 7             |
| CG13813 | 49728  | 3 | CG13813   |
| CG5870  | 266316 | 1 | Spectrin  |
| CG33979 | 45975  | 1 | capulet   |
| CG15249 | 21072  | 1 | CG15249   |
| CG9188  | 69081  | 1 | septin interacting protein 2                      |
| CG8258  | 59795  | 1 | CG8258  |
| CG1475  | 23803  | 1 | Ribosomal protein L13A                            |

|         |        |   |   |
|---------|--------|---|---|
| CG4560  | 20849  | 1 | Actin-related protein 23 complex, subunit 3A                    |
| CG6378  | 45824  | 1 | Regulatory particle non-ATPase 7                                |
| CG17209 | 156467 | 1 | CG17209   |
| CG7380  | 10838  | 1 | barrier to autointegration factor                               |
| CG18437 | 369614 | 1 | CG18437   |
| CG9603  | 9895   | 1 | Cytochrome c oxidase subunit 7A                                 |
| CG7324  | 147970 | 1 | CG7324  |
| CG7808  | 23859  | 1 | Ribosomal protein S8  |
| CG80115 | 172806 | 1 | Guanine nucleotide exchange factor in meioderm                  |
| CG8724  | 52971  | 1 | Phosphoglucuronate dehydrogenase                                |
| CG6371  | 92889  | 1 | Ribonucleoside diphosphate reductase large subunit              |
| CG9124  | 38725  | 1 | Eukaryotic initiation factor 3 p40 subunit                      |
| CG4633  | 114629 | 3 | mitochondrial alanine-tRNA synthetase                           |
| CG4954  | 106158 | 1 | eIF3-S8   |
| CG13809 | 198915 | 1 | osm-1   |
| CG1359  | 16959  | 1 | BET5 ortholog   |
| CG18026 | 173429 | 1 | Calcium activated protein for secretion gloriand                |
| CG6946  | 61359  | 1 |   |
| CG4214  | 51818  | 1 | Syntaxin 5  |
| CG7843  | 107612 | 1 | Ars2  |
| CG6808  | 60164  | 1 | arabidopsis containing kinase                                   |
| CG1347  | 153384 | 1 | Atg17   |
| CG9983  | 39014  | 1 | Heterogeneous nuclear ribonucleoprotein at 98DE                 |
| CG16880 | 26279  | 1 | Nimrod C3   |
| CG1683  | 34007  | 1 | Adenine nucleotide translocase 2                                |
| CG3961  | 79621  | 1 | CG3961  |
| CG1617  | 26400  | 1 | His1,CG1617   |
| CG82549 | 82093  | 1 | CG82549   |
| CG82683 | 88166  | 2 | CG82683   |
| CG4257  | 71722  | 1 | Signal transducer and activator of transcription protein at 92E |
| CG9945  | 58896  | 1 | CG9945  |
| CG9394  | 77002  | 1 | CG9394  |
| CG12499 | 239542 | 1 | CG12499   |
| CG6059  | 104413 | 1 | CG6059  |
| CG17514 | 296460 | 1 | CG17514   |
| CG1422  | 93094  | 1 | p115  |
| CG82743 | 366260 | 1 | no-on-and-no-off transient C                                    |

**table S 2E. pMT-GORAB-GFP purification from okadaic acid treated *Drosophila* cell extracts**

| CG #    | Score | #pep | Full name                      |
|---------|-------|------|--------------------------------|
| CG15792 | 36530 | 566  | zipper                         |
| CG15792 | 36311 | 564  | zipper                         |
| CG15792 | 36311 | 564  | zipper                         |
| CG15792 | 36311 | 564  | zipper                         |
| CG15792 | 36311 | 564  | zipper                         |
| CG15792 | 36266 | 563  | zipper                         |
| CG33052 | 24140 | 337  | CG33052                        |
| CG4027  | 9568  | 145  | Actin 5C                       |
| CG12051 | 9532  | 143  | Actin 42A                      |
| CG10067 | 7953  | 122  | Actin 5/B                      |
| CG7478  | 7380  | 103  | Actin 9B                       |
| CG5178  | 5060  | 100  | Actin 88F                      |
| CG3201  | 2730  | 51   | Myosin light chain cytoplasmic |
| CG9155  | 2495  | 47   | Myosin 61F                     |
| CG9155  | 2483  | 46   | Myosin 61F                     |
| CG9155  | 2483  | 46   | Myosin 61F                     |
| CG9155  | 2483  | 46   | Myosin 61F                     |
| CG7583  | 2262  | 40   | C-terminal Binding Protein     |
| CG7583  | 1984  | 38   | C-terminal Binding Protein     |
| CG4264  | 1796  | 35   | Heat shock protein cognate 4   |
| CG1973  | 1584  | 21   | yata                           |
| CG5695  | 1513  | 29   | ja guar                        |
| CG4898  | 1404  | 33   | Tropomyosin 1                  |
| CG5695  | 1401  | 26   | ja guar                        |
| CG8280  | 1367  | 31   | Elongation factor 1 48D        |
| CG9012  | 1347  | 22   | Clathrin heavy chain           |
| CG4898  | 1313  | 31   | Tropomyosin 1                  |
| CG7438  | 1280  | 26   | Myosin 31DF                    |
| CG9277  | 1220  | 18   | -Tubulin at 56D                |
| CG1913  | 1201  | 25   | -Tubulin at 84B                |
| CG9277  | 1176  | 17   | -Tubulin at 56D                |

|         |      |    |                                    |
|---------|------|----|------------------------------------|
| CG5595  | 1144 | 27 | spaghetti squash                   |
| CG9277  | 1117 | 16 | -Tubulin at 56D                    |
| CG9277  | 1117 | 16 | -Tubulin at 56D                    |
| CG4898  | 1113 | 25 | Tropomyosin 1                      |
| CG1484  | 1107 | 21 | flightless I                       |
| CG4898  | 1022 | 23 | Tropomyosin 1                      |
| CG16858 | 1014 | 16 | viking                             |
| CG145   | 984  | 15 | Collagen type IV                   |
| CG825   | 748  | 6  | Histone H3.3A                      |
| CG9476  | 747  | 16 | -Tubulin at 85E                    |
| CG17158 | 745  | 12 | capping protein beta               |
| CG12065 | 708  | 15 | CG12065                            |
| CG4898  | 697  | 16 | Tropomyosin 1                      |
| CG4898  | 697  | 16 | Tropomyosin 1                      |
| CG4898  | 697  | 16 | Tropomyosin 1                      |
| CG4898  | 697  | 16 | Tropomyosin 1                      |
| CG4898  | 697  | 16 | Tropomyosin 1                      |
| CG4898  | 697  | 16 | Tropomyosin 1                      |
| CG4898  | 697  | 16 | Tropomyosin 1                      |
| CG2146  | 673  | 20 | dilute class unconventional myosin |
| CG18743 | 628  | 9  | Heat-shock-protein-70Ab            |
| CG6436  | 600  | 8  | Heat shock protein 68              |
| CG31449 | 600  | 8  | Heat-shock-protein-70Ba            |
| CG31359 | 600  | 8  | Heat-shock-protein-70Bb            |
| CG6489  | 600  | 8  | Heat-shock-protein-70Bc            |
| CG6834  | 600  | 8  | Hsp70Bbb                           |
| CG6223  | 590  | 12 | Coat Protein (coatome)             |
| CG10938 | 566  | 2  | Proteasome 5 subunit               |
| CG4898  | 549  | 10 | Tropomyosin 1                      |
| CG4898  | 549  | 10 | Tropomyosin 1                      |
| CG4898  | 549  | 10 | Tropomyosin 1                      |
| CG4898  | 549  | 10 | Tropomyosin 1                      |

|         |     |    |   |
|---------|-----|----|---|
| CG5502  | 548 | 11 | Ribosomal protein L4                              |
| CG1539  | 548 | 10 | tropomodulin                                      |
| CG2146  | 523 | 16 | diffuse class unconventional myosin               |
| CG4634  | 508 | 5  | Nucleosome remodeling factor - 38kD               |
| CG3752  | 506 | 2  | Aldehyde dehydrogenase                            |
| CG1528  | 488 | 8  | Coat Protein (coatomer)                           |
| CG2331  | 481 | 10 | TER94   |
| CG31618 | 481 | 8  | His2A:CG31618                                     |
| CG7885  | 470 | 2  | RNA polymerase II 33kD subunit                    |
| CG9325  | 463 | 5  | hu li tai shao                                    |
| CG3401  | 458 | 7  | -Tubulin at 60D                                   |
| CG6699  | 441 | 6  | Coat Protein (coatomer)                           |
| CG9359  | 428 | 10 | -Tubulin at 85D                                   |
| CG12052 | 425 | 5  | longitudinalis lacking                            |
| CG8937  | 410 | 4  | Heat shock protein cognate 1                      |
| CG8937  | 410 | 4  | Heat shock protein cognate 1                      |
| CG8937  | 410 | 4  | Heat shock protein cognate 1                      |
| CG1873  | 407 | 15 | Elongation factor 1 100E                          |
| CG1873  | 407 | 15 | Elongation factor 1 100E                          |
| CG1873  | 407 | 15 | Elongation factor 1 100E                          |
| CG1242  | 378 | 8  | Heat shock protein 83                             |
| CG6831  | 378 | 3  | rhea  |
| CG3016  | 373 | 4  | Ubiquitin specific protease 30                    |
| CG6871  | 372 | 5  | Catalase  |
| CG10160 | 365 | 5  | Ecdysone-inducible gene L3                        |
| CG7595  | 363 | 6  | crinkled  |
| CG10370 | 333 | 4  | Regulatory particle triple-A ATPase 5             |
| CG12008 | 330 | 3  | karst   |
| CG7961  | 329 | 11 | Coat Protein (coatomer)                           |
| CG32549 | 317 | 7  | CG32549   |
| CG10540 | 301 | 6  | capping protein alpha                             |
| CG5499  | 294 | 6  | Histone H2A variant                               |
| CG14996 | 294 | 8  | Chd64   |
| CG6148  | 289 | 4  | Putative Achaete/Scute Target 1                   |
| CG1106  | 287 | 7  | Gelsolin  |
| CG11143 | 285 | 4  | Inos  |
| CG2238  | 284 | 7  | Elongation factor 2                               |
| CG6815  | 276 | 7  | belphégor   |
| CG3937  | 275 | 7  | cheerio   |
| CG8014  | 274 | 4  | Receptor mediate endocytosis 8                    |
| CG6439  | 272 | 6  | CG6439  |
| CG4897  | 265 | 4  | Ribosomal protein L7                              |
| CG9748  | 262 | 8  | bel le  |
| CG8472  | 261 | 7  | Calm odulin                                       |
| CG4147  | 261 | 5  | Heat shock 70-kDa protein cognate 3               |
| CG7878  | 259 | 2  | CG7878  |
| CG4799  | 258 | 4  | Pendulin  |
| CG32549 | 257 | 6  | CG32549   |
| CG1977  | 256 | 3  | Spectrin  |
| CG10223 | 256 | 9  | Topoisomerase 2                                   |
| CG1883  | 256 | 5  | Ribosomal protein S7                              |
| CG6450  | 251 | 5  | lava lamp   |
| CG2331  | 235 | 4  | TER94   |
| CG6253  | 232 | 6  | Ribosomal protein L14                             |
| CG4389  | 232 | 3  | Mitochondrial trifunctional protein subunit       |
| CG5482  | 232 | 2  | CG5482  |
| CG7765  | 228 | 3  | Kinesin heavy chain                               |
| CG6831  | 228 | 2  | rhea  |
| CG6831  | 228 | 2  | rhea  |
| CG5409  | 225 | 4  | Actin-related protein 53D                         |
| CG15524 | 223 | 7  | Spindle assembly abnormal 6 ortholog (C. elegans) |
| CG8266  | 214 | 3  | sec3l   |
| CG12819 | 214 | 3  | slender bbes                                      |
| CG3265  | 213 | 6  | Eb1   |
| CG5170  | 211 | 4  | Dodeca-satellite-binding protein 1                |
| CG3074  | 207 | 2  | Secreted Wg-interacting molecule                  |
| CG4858  | 206 | 1  | CG4858  |
| CG8309  | 200 | 2  | Transport and Golgi organization 7                |
| CG8922  | 198 | 4  | Ribosomal protein S5a                             |
| CG12233 | 198 | 3  | lethal (1)G0156                                   |
| CG12592 | 198 | 1  | CG12592   |
| CG32626 | 198 | 6  | AMP deaminase                                     |
| CG9633  | 194 | 1  | Replication Protein A 70                          |
| CG17521 | 194 | 1  | Ribosomal protein L10                             |
| CG4634  | 190 | 2  | Nucleosome remodeling factor - 38kD               |
| CG2621  | 189 | 2  | shaggy  |
| CG13389 | 188 | 4  | Ribosomal protein S13                             |
| CG11943 | 188 | 2  | Nucleoporin 205kD                                 |
| CG17333 | 178 | 2  | CG17333   |
| CG18740 | 177 | 3  | moira   |
| CG3714  | 177 | 2  | CG3714  |
| CG18572 | 176 | 1  | rudimentary                                       |
| CG1782  | 175 | 2  | Ubiquitin activating enzyme 1                     |
| CG30122 | 175 | 3  | CG30122   |

|         |     |   |   |
|---------|-----|---|---|
| CG8578  | 173 | 4 | CG8578  |
| CG1064  | 172 | 1 | Srf5-related 1  |
| CG2252  | 171 | 2 | female sterile (1) homeotic                                 |
| CG8379  | 171 | 5 | Histone H4 replacement                                      |
| CG5289  | 171 | 2 | Regulatory particle triple-A ATPase 2                       |
| CG16944 | 170 | 8 | stress-sensitive B  |
| CG8036  | 168 | 2 | CG8036  |
| CG7726  | 167 | 3 | Ribosomal protein L11                                       |
| CG18190 | 167 | 4 | CG18190   |
| CG8615  | 167 | 3 | Ribosomal protein L18                                       |
| CG16932 | 165 | 2 | Epidermal growth factor receptor pathway substrate clone 15 |
| CG878   | 163 | 4 | elf3-S9   |
| CG6339  | 163 | 2 | rad50   |
| CG31048 | 162 | 1 | sponge  |
| CG6617  | 160 | 2 | CG6617  |
| CG14299 | 157 | 1 | CG14299   |
| CG7756  | 154 | 2 | Heat shock protein cognate 2                                |
| CG5371  | 154 | 2 | Ribonucleoside diphosphate reductase large subunit          |
| CG12532 | 153 | 4 | Adaptor Protein complex 1/2, subunit                        |
| CG8439  | 153 | 1 | T-complex Chaperonin5                                       |
| CG10986 | 152 | 1 | garnet  |
| CG1548  | 151 | 4 | cathD   |
| CG9805  | 151 | 3 | elf3-S10  |
| CG5920  | 149 | 3 | Ribosomal protein S2  |
| CG1683  | 147 | 6 | Adenine nucleotide translocase 2                            |
| CG1683  | 147 | 6 | Adenine nucleotide translocase 2                            |
| CG17654 | 146 | 1 | Enolase   |
| CG9888  | 146 | 4 | Fibrillarin   |
| CG18102 | 146 | 3 | shibire   |
| CG11856 | 146 | 2 | Nucleoporin 358kD   |
| CG16916 | 145 | 1 | Regulatory particle triple-A ATPase 3                       |
| CG378   | 144 | 3 | Regulatory particle non-ATPase 7                            |
| CG9282  | 144 | 2 | Ribosomal protein L24                                       |
| CG1345  | 144 | 2 | Glutamine:fructose-6-phosphate aminotransferase 2           |
| CG15693 | 143 | 2 | Ribosomal protein S20                                       |
| CG9901  | 141 | 1 | Actin-related protein 2                                     |
| CG1403  | 139 | 1 | Septin 1  |
| CG9543  | 138 | 1 | Coat Protein (coatomer)                                     |
| CG10306 | 138 | 2 | CG10306   |
| CG1469  | 138 | 2 | Ubiquinol-cytochrome c reductase core protein 2             |
| CG17949 | 138 | 2 | His2B:CG17949   |
| CG8416  | 135 | 2 | Regulatory particle non-ATPase 8                            |
| CG1691  | 135 | 2 | IGF-II mRNA-binding protein                                 |
| CG8954  | 134 | 1 | Smg5  |
| CG8203  | 134 | 3 | Ribosomal protein L17                                       |
| CG8821  | 133 | 1 | Aspartyl-tRNA synthetase                                    |
| CG6258  | 132 | 3 | Replication factor C 38kD subunit                           |
| CG4003  | 131 | 1 | pontin  |
| CG2216  | 130 | 3 | Ferritin 1 heavy chain homologue                            |
| CG5704  | 129 | 1 | CG5704  |
| CG8443  | 129 | 1 | clueless  |
| CG15820 | 129 | 1 | CG15820   |
| CG8395  | 127 | 3 | Ribosomal protein S9  |
| CG6773  | 127 | 3 | Sec13 ortholog (S. cerevisiae)                              |
| CG8334  | 127 | 1 | Ubiquitin specific protease 32                              |
| CG4877  | 124 | 1 | RING-associated factor 2                                    |
| CG8322  | 123 | 1 | ATP citrate lyase   |
| CG181   | 119 | 2 | Protein tyrosine phosphatase 61F                            |
| CG9999  | 119 | 1 | Ran GTPase activating protein                               |
| CG6946  | 119 | 4 | glorund   |
| CG12234 | 117 | 1 | Ranbp21   |
| CG1489  | 116 | 3 | Regulatory particle triple-A ATPase 6                       |
| CG6235  | 115 | 2 | twins   |
| CG8705  | 115 | 1 | peanut  |
| CG1591  | 115 | 2 | REG   |
| CG17489 | 115 | 3 | Ribosomal protein L5  |
| CG3407  | 115 | 2 | Not1  |
| CG1341  | 113 | 3 | Regulatory particle triple-A ATPase 1                       |
| CG6014  | 112 | 2 | Vap-33-1  |
| CG7846  | 112 | 1 | Actin-related protein 8                                     |
| CG6606  | 111 | 1 | ca beza   |
| CG8230  | 111 | 2 | CG8230  |
| CG17272 | 111 | 2 | CG17272   |
| CG8661  | 109 | 2 | Ribosomal protein L23                                       |
| CG7809  | 109 | 1 | Grasp65   |
| CG10811 | 108 | 2 | eukaryotic translation initiation factor 4G                 |
| CG10230 | 108 | 1 | Regulatory particle non-ATPase 9                            |
| CG6299  | 107 | 2 | Vinculin  |
| CG10377 | 107 | 1 | Heterogeneous nuclear ribonucleoprotein at 27C              |
| CG8332  | 107 | 2 | Ribosomal protein S15                                       |
| CG1646  | 107 | 2 | CG1646  |

|         |     |   |   |
|---------|-----|---|---|
| CG17498 | 106 | 3 | ma dL                                       |
| CG7808  | 106 | 4 | Ribosomal protein S8                        |
| CG7762  | 104 | 2 | Regulatory particle non-ATPase 1            |
| CG4429  | 103 | 4 | RNA-binding protein 2                       |
| CG9281  | 103 | 2 | CG9281                                      |
| CG9881  | 103 | 1 | Actin-related protein 23 complex, subunit 5 |
| CG4869  | 102 | 2 | -Tubulin at 97EF                            |
| CG4869  | 102 | 2 | -Tubulin at 97EF                            |
| CG5434  | 102 | 1 | Signal recognition particle protein 72      |
| CG6779  | 101 | 4 | Ribosomal protein S3                        |
| CG8542  | 100 | 3 | Heat shock protein cognate 5                |
| CG7558  | 100 | 2 | Actin-related protein 66B                   |
| CG12030 | 100 | 2 | UDP-galactose 4-epimerase                   |
| CG5000  | 98  | 2 | mini spindles                               |
| CG1633  | 98  | 3 | thioredoxin peroxidase 1                    |
| CG4260  | 98  | 1 | Adaptor Protein complex 2, subunit          |
| CG3922  | 97  | 2 | Ribosomal protein S17                       |
| CG43119 | 97  | 3 | Ec to dem-expressed 4                       |
| CG4046  | 96  | 3 | Ribosomal protein S16                       |
| CG7014  | 96  | 2 | Ribosomal protein S5b                       |
| CG1349  | 96  | 3 | dj-1  |
| CG7111  | 94  | 2 | Receptor of activated protein kinase C 1    |
| CG10944 | 92  | 2 | Ribosomal protein S6                        |
| CG6948  | 92  | 2 | Clathrin light chain                        |
| CG3455  | 91  | 2 | Regulatory particle triple-A ATPase 4       |
| CG3751  | 91  | 2 | Ribosomal protein S24                       |
| CG1250  | 91  | 1 | Sec23 ortholog (S. cerevisiae)              |
| CG4157  | 90  | 1 | Regulatory particle non-ATPase 12           |
| CG12262 | 90  | 1 | CG12262                                     |
| CG7283  | 90  | 1 | Ribosomal protein L10Ab                     |
| CG2905  | 90  | 1 | Nippe dA                                    |
| CG6315  | 89  | 1 | fem ale lethal d                            |
| CG17291 | 89  | 2 | Protein phosphatase 2A at 29B               |
| CG5119  | 88  | 2 | polyA-binding protein                       |
| CG4033  | 88  | 2 | RNA polymerase I 135kD subunit              |
| CG3523  | 88  | 3 | Fatty acid synthase 1                       |
| CG5261  | 88  | 2 | mi dline uncoordinated d                    |
| CG4931  | 88  | 1 | specifically Rac1-associated protein 1      |
| CG17420 | 87  | 4 | Ribosomal protein L15                       |
| CG3612  | 86  | 3 | bel lwether                                 |
| CG14792 | 85  | 2 | stubarista                                  |
| CG5825  | 84  | 2 | Histone H3.3A                               |
| CG31613 | 84  | 2 | His3:CG31613                                |
| CG33803 | 84  | 2 | His3:CG33803                                |
| CG33806 | 84  | 2 | His3:CG33806                                |
| CG33809 | 84  | 2 | His3:CG33809                                |
| CG33812 | 84  | 2 | His3:CG33812                                |
| CG33815 | 84  | 2 | His3:CG33815                                |
| CG33818 | 84  | 2 | His3:CG33818                                |
| CG33821 | 84  | 2 | His3:CG33821                                |
| CG33824 | 84  | 2 | His3:CG33824                                |
| CG33827 | 84  | 2 | His3:CG33827                                |
| CG33830 | 84  | 2 | His3:CG33830                                |
| CG33833 | 84  | 2 | His3:CG33833                                |
| CG33836 | 84  | 2 | His3:CG33836                                |
| CG33839 | 84  | 2 | His3:CG33839                                |
| CG33842 | 84  | 2 | His3:CG33842                                |
| CG33845 | 84  | 2 | His3:CG33845                                |
| CG33848 | 84  | 2 | His3:CG33848                                |
| CG33851 | 84  | 2 | His3:CG33851                                |
| CG33854 | 84  | 2 | His3:CG33854                                |
| CG33857 | 84  | 2 | His3:CG33857                                |
| CG33860 | 84  | 2 | His3:CG33860                                |
| CG33863 | 84  | 2 | His3:CG33863                                |
| CG33866 | 84  | 2 | His3:CG33866                                |
| CG4863  | 82  | 1 | Ribosomal protein L3                        |
| CG10423 | 82  | 2 | Ribosomal protein S27                       |

|         |    |   |   |
|---------|----|---|---|
| CG8724  | 81 | 1 | Phosphogluconate dehydrogenase                  |
| CG17611 | 81 | 1 | eIF6  |
| CG2699  | 80 | 1 | Pl3K21B   |
| CG7324  | 80 | 1 | CG7324  |
| CG8947  | 80 | 1 | 26-29kD-proteinase                              |
| CG8314  | 79 | 1 | Ribosomal protein L7A                           |
| CG8231  | 79 | 2 | T-cpl   |
| CG1994  | 79 | 1 | lethal (1) G0020                                |
| CG8028  | 79 | 3 | CG5028  |
| CG5330  | 78 | 1 | Nucleosome assembly protein 1                   |
| CG2774  | 78 | 1 | Sorting nexin 1                                 |
| CG5587  | 77 | 2 | CG3587  |
| CG16817 | 77 | 1 | CG16817   |
| CG8726  | 76 | 1 | CG5726  |
| CG8351  | 76 | 2 | Tcp-1   |
| CG4173  | 75 | 1 | Septin 2  |
| CG12512 | 75 | 1 | CG12512   |
| CG4217  | 74 | 1 | mitochondrial transcription factor A            |
| CG3979  | 74 | 3 | capulet   |
| CG6476  | 73 | 2 | Suppressor of variation 3-9                     |
| CG4439  | 73 | 3 | Argonaute 2                                     |
| CG4464  | 72 | 1 | Ribosomal protein S9a                           |
| CG8226  | 72 | 1 | CG3226  |
| CG14206 | 72 | 2 | Ribosomal protein S10b                          |
| CG5271  | 70 | 1 | Ribosomal protein S27A                          |
| CG4364  | 70 | 1 | CG4364  |
| CG6684  | 69 | 2 | Ribosomal protein S25                           |
| CG8333  | 69 | 1 | Nucleolar protein at 60B                        |
| CG6782  | 69 | 2 | sche ggia                                       |
| CG5028  | 69 | 2 | CG5028  |
| CG11901 | 68 | 1 | Erf1  |
| CG13349 | 68 | 1 | Regulatory particle non-ATPase 13               |
| CG14549 | 68 | 4 | Sld5  |
| CG16973 | 67 | 2 | mi sshapen                                      |
| CG8210  | 67 | 1 | Dynam in-related protein 1                      |
| CG5366  | 67 | 1 | Cull in-associated and neddylation-associated 1 |
| CG6203  | 67 | 1 | Fmr1  |
| CG5339  | 66 | 1 | SLY-1 homologous                                |
| CG6543  | 66 | 1 | CG6543  |
| CG5174  | 66 | 1 | CG5174  |
| CG6646  | 65 | 1 | DJ-1  |
| CG2050  | 64 | 1 | modulo  |
| CG11228 | 64 | 1 | hippo   |
| CG12306 | 63 | 2 | polo  |
| CG8977  | 63 | 2 | Cct   |
| CG2168  | 63 | 1 | Ribosomal protein S3A                           |
| CG11276 | 62 | 2 | Ribosomal protein S4                            |
| CG18212 | 62 | 1 | aluminum tubes                                  |
| CG6937  | 62 | 1 | CG6937  |
| CG2216  | 61 | 2 | Ferritin 1 heavy chain homologue                |
| CG6842  | 61 | 1 | Vacuolar protein sorting 4                      |
| CG16901 | 61 | 1 | squid   |
| CG7490  | 60 | 1 | Ribosomal protein LP0                           |
| CG10701 | 60 | 2 | Moesin  |
| CG2508  | 60 | 1 | Cell division cycle 23 ortholog                 |
| CG10944 | 58 | 1 | Ribosomal protein S6                            |
| CG6341  | 58 | 1 | Elongation factor 1                             |
| CG8967  | 58 | 1 | CG3967  |
| CG6718  | 58 | 1 | calcium-independent phospholipase A2 VIA        |
| CG9769  | 58 | 1 | CG9769  |

**table S3. List of oligos**

| <b>Primers used for CRISPR/Cas9 mutagenesis</b>                                    |   |
|--|---|
| <b>Name</b>  | <b>Sequence(5'-3')</b>                                  |
| gRNA1 Fw   | GTCGAGTTTGTATGCGATCATTCG                                |
| gRNA1 Rev  | AAACCGAATGATCGCATCAAACT                                 |
| gRNA2 Fw   | GTCGAATTACTGAAACTGAGTAGT                                |
| gRNA2 Rev  | AAACACTACTCAGTTTCAGTAATT                                |
| gRNA5 Fw   | GTCGTGCATTGTGCAGCTCTATCT                                |
| gRNA5 Rev  | AAACAGATAGAGCTGCACAATGCA                                |
| Detection Fw primer  | TCGTGTAACTGCGAACTG                                      |
| Detection Rev primer   | AACGGTGTGCCACATAG                                       |
| <b>Primers used for site directed mutagenesis for Gorab fly transgenes</b>         |   |
| V266P Sense  | CGACAATGCCTGCATACATTTTGCCAATCCAGAAAAACAATACGTCAA<br>A   |
| V266P Anti-sense   | TTTGTACGTATTGTTTTCTGGATTGGCAAATGTATGCAGGCATTGTCTG       |
| GTD Sense  | GCTG GAAAGTGATCTGCCAACCGATGATTGCC                       |
| GTD Anti-sense   | GGCAATCATCGGTTGGCAGATCACTTCCAGC                         |
| N-GTD Sense  | CCAAGCTGGAAAGTGATCTGTGCATACATTTTGCCAATGT                |
| N-GTD Anti-sense   | ACATTGGCAAATGTATGCACAGATCACTTCCAGCTTGG                  |
| C-GTD Sense  | GGGCCAAGATAGAGCTGCACAATCCAACCGATGAT                     |
| C-GTD Anti-sense   | ATCATCGGTTGGATTGTGCAGCTCTATCTTGGCCC                     |
| SID Sense  | GCTGAGGAAGCAGATCGACAATGCCGCATCCGAAAAGAA<br>GGAGCTGCTCA  |
| SID Anti-sense   | TGAGCAGCTCCTTCTTTTCGGATGCGGCATTGTCTGATCTGC<br>TTCCTCAGC |
| <b>Primers used for site directed mutagenesis for in vitro interaction studies</b> |   |
| Gorab 219-244 Sense  | AATGCTGTACCAGGCCATCGAGCAGCTGGCCGTGGACGTA<br>GCTCTGCTGA  |
| Gorab 219-244 Anti-sense   | TCAGCAGAGCTACGTCCACGGCCAGCTGCTCGATGGCCTG<br>GTACAGCATT  |
| Gorab 244-259 Sense  | CGAGCTGTCCAAGCTGGAAAGTGATTGCATACATTTTGCC<br>AATGTAGAAA  |
| Gorab 244-259 Anti-sense   | TTTCTACATTGGCAAATGTATGCAATCACTTCCAGCTTG<br>GACAGCTCG    |
| Gorab 286-320 Sense  | GCGGGCCAAGATAGAGCTGCACAATGGTCTGTGCGCAACC<br>GATGATTGCC  |
| Gorab 286-320 Anti-sense   | GGCAATCATCGGTTGGCGACAGACCATTTGTGCAGCTCTAT<br>CTTGGCCCCG |
| Gorab 303-320 Sense  | AGAGCATCTATGCACAGTAATTGCCGGTCTGTGCGCAACC<br>GATGATTGCC  |
| Gorab 303-320 Anti-sense   | GGCAATCATCGGTTGGCGACAGACCGGCAATTACTGTGCA<br>TAGATGCTCT  |
| Gorab 220-318 Sense  | AATGCTGTACCAGGCCATCGAGCAGAAAGTGGGTCTGTCTG<br>CCAACCGATG |

|   |  |
|---|--|
| Gorab 220-318 Anti-sense                                | CATCGGTTGGCGACAGACCCACTTTCTGCTCGATGGCCTG<br>GTACAGCATT                                       |
| Gorab 220-286 Sense                                     | AATGCTGTACCAGGCCATCGAGCAGGCATCCGAAAAGAA<br>GGAGCTGCTCA                                       |
| Gorab 220-286 Anti-sense                                | TGAGCAGCTCCTTCTTTTCGGATGCCTGCTCGATGGCCTGG<br>TACAGCATT                                       |
| Gorab 260-286 Sense                                     | GCTGAGGAAGCAGATCGACAATGCCGCATCCGAAAAGAA<br>GGAGCTGCTCA                                       |
| Gorab 260-286 Anti-sense                                | TGAGCAGCTCCTTCTTTTCGGATGCGGCATTGTCTGATCTGC<br>TTCCTCAGC                                      |
| Gorab 260-266 Sense                                     | GCTGAGGAAGCAGATCGACAATGCCGAAAAACAATACGT<br>CAAAATCGAGG                                       |
| Gorab 260-266 Anti-sense                                | CCTCGATTTTGACGTATTGTTTTTCGGCATTGTCTGATCTGC<br>TTCCTCAGC                                      |
| Gorab 267-281 Sense                                     | CTGCATACATTTTGCCAATGTAGAAATAGAGCTGCACAAT<br>GCATCCGAAA                                       |
| Gorab 267-281 Anti-sense                                | TTTCGGATGCATTGTGCAGCTCTATTTCTACATTGGCAAAA<br>TGTATGCAG                                       |
| Gorab 282-286 Sense                                     | AATGCTGTACCAGGCCATCGAGCAGGCATCCGAAAAGAA<br>GGAGCTGCTCA                                       |
| Gorab 282-286 Anti-sense                                | TGAGCAGCTCCTTCTTTTCGGATGCCTGCTCGATGGCCTGG<br>TACAGCATT                                       |
| <b>Primers used to generate Gorab protein fragments</b> |  |
| Gorab FL Fw   | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGACTGAGA<br>AATTCAATGGTTTTAGCC                           |
| Gorab FL Rev  | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTAGGGGCTTTGTTG<br>AGTTAAATCAATC                               |
| Gorab 191-318 Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGTCTGCTGA<br>AGGACTTCGAACAGC                             |
| Gorab 191-318 Rev                                       | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTACTGCATCAATTC<br>AGTAAGCTTTT                                 |
| Gorab 244-338 Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGGATCTGG<br>CCGTGGACGTAGCTCTGC                           |
| Gorab 172-338 Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGACCCAGG<br>ACACCTCGCCGCGGGAGC                           |
| Gorab 1-171 Rev   | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTAACTCGGCAGGA<br>TGCTGCCATCATCG                               |
| Gorab 1-113 Rev   | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTAGGAGAGTGGGC<br>GGTCCAAATTTAGC                               |
| Gorab 114-243 Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGGATTCAT<br>TAATAGAGGCACTCTACC                           |
| Gorab 114-243 Rev                                       | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTAACTTTCCAGCTT<br>GGACAGCTCGTGG                               |
| <b>Primers used to generate Sas6 protein fragments</b>  |  |
| Sas6 FL Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAGAATTAATAC<br>GACTCACTATAGGGAGAGCCGCCACCATGTGGCCTCCAGGGAGC |



|  |  |
|--|--|
|  | GAGG   |
| Sas6 FL Rev  |  |
| Sas6 1-462 Rev   | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTAAAGCCGTTCTTT<br>TAGAATGAGGATT     |
| Sas6 1-452 Rev   | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTAGGAATACTTCT<br>GCTCCAGTCCCTGG     |
| Sas6 1-412 Rev   | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTATAGTAGGCTCTC<br>CTTGGCCTGAACC     |
| Sas6 1-180 Rev   | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTACTCGAGAATAT<br>ATTGCTTTTTGTGG     |
| Sas6 181-408 Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGCAAAGTA<br>TGCAGCAAATGCAGGCTG |
| Sas6 181-408 Rev   | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTACTTGGCCTGAA<br>CCGCCTTCTCTTGC     |
| Sas6 295-472 Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGACCCTAA<br>AAGAGCAAATGACAA    |
| Sas6 351-472 Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGGCCGAGA<br>AGAAGATCCTGCACA    |
| Sas6 361-472 Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGCAGGCTT<br>TGGAATGGCCTCCG     |
| Sas6 371-472 Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGTCCAAGG<br>CCAACCAGATAATCG    |
| <b>Primers used to generate human GORAB entry clones</b> |  |
| hGorab Fw  | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGAGCTGGG<br>CAGCAGTGTTGGCAG    |
| hGorab Rev   | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTATGTGGCCAAAG<br>CAGCTGAAATG        |
| <b>Primers used to generate human SAS6 entry clones</b>  |  |
| hSas6 Fw   | GGGGACAAGTTTGTACAAAAAAGCAGGCTCCAAAATGAGCCAAG<br>TGCTGTTCCACCAAC    |
| hSas6 Rev  | GGGGACCACTTTGTACAAGAAAGCTGGGTCTTAACTGTTTGGTAA<br>CTGCCCAGGGAAA     |